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ABSTRACT

As part of an effort to identify ways in which Midland College (Texas) and local businesses can respond to the economic needs of the community, these three papers by the Midland's Business and Economic Development Center offer various perspectives on the economic climate and labor market of the Permian Basis. The first report, "Midland's Economy: Past, Present and Future," provides an overview of the economic base of the area in oil and gas and manufacturing; longitudinal data on employment in dependent sectors such as finance, insurance, real estate, construction, transportation, communication, utilities, trade, services, and government; and an analysis of real estate trends in housing, office space, apartments, and retail centers. A discussion of the outlook for Midland's economy concludes the report. Next, "The Midland/Odessa Economy: Foundation and Future," presents information on the external factors which influence the region's oil-based economy, such as international economics and politics, and national tax and energy policies. In addition, the paper discusses the outlook and options for future of the region's economy. Finally, "Report on Labor Demand in the Permian Basin" presents results of a study conducted in 1989 to explore the future labor needs of employers in the 17 county area of western Texas, utilizing a survey of 130 area businesses. Results of the survey, which requested information on the present number of employees and estimated numbers of employees that will be needed by the years 1994 and 2000, are presented in two formats. The first format gives the projected total of employees that will be employed in 1989, 1994, and 2000. The second format presented provides the percentage of total workforce for each occupation in each year. Lists of the fastest and slowest growing fields are included. (JMC)

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MIDLAND'S ECONOMY: PAST, PRESENT AND FUTURE

MIDLAND/ODESSA ECONOMY: FOUNDATION AND FUTURE

AND

REPORT ON LABOR DEMAND IN THE PERMIAN BASIN

By

James L. Williams and Nolan M. McCarty

1989

JC 900453

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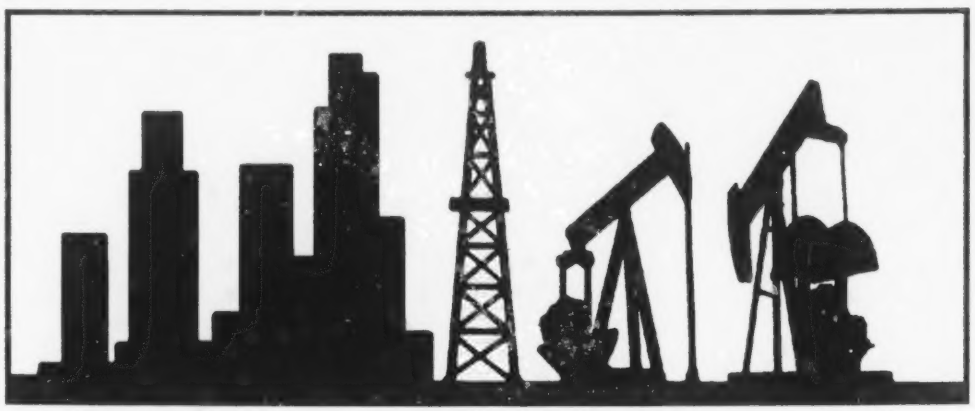
MIDLAND'S ECONOMY

PAST, PRESENT AND FUTURE



by
James L. Williams
Texas Business Forecasts

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Business and Industrial Growth Analysis

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FOCUSING ON THE OPPORTUNITIES OF THE COMMUNITY

VOLUME 1 NUMBER 1

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MAY 1988

This report is the first of a series of publications in accordance with our efforts to identify creative and effective ways for the college, chamber of commerce, and business organizations to respond to economic needs in the community. These criteria include: Economic Development Needs Assessment, Diversification Study, Undersupplied Industry Study, Incubator Feasibility Plan, Planning for Success, Technical Assistance to New Entrepreneurs, Business Support and Assistance for Small Businesses, and Retaining and Upgrading Job Skills.

The Midland Chamber of Commerce has paid for the initial historical analysis and research which forms the basis for the projections contained in this report. The research was performed by Texas Business Forecasts which has monitored and forecast the Midland economy for the past five years. The College has also received tremendous cooperation from all aspects of the community.

Based on the research information we have received, we feel very optimistic about the economic future of this area and hope this is the first of many research and analysis reports.

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MIDLAND'S ECONOMY

Midland, Texas is located in the heart of the West Texas oil country known as the Permian Basin. The Basin was named after the ancient Permian Sea which washed over the West Texas plains depositing sediment. This sediment became the source rock and the reservoir rock for the oil and gas which is the economic base for Midland. An understanding of the oil and gas industry is a necessary backdrop to comprehend the local economy's movement.

The Midland economy is heavily dependent upon oil and gas production and exploration and the manufacturing of equipment for the energy industry. Eighty to ninety percent of the fluctuation in employment in Midland since 1974 can be explained by variations in crude oil prices. The graph of oil prices and employment illustrates the relationship between energy and the Midland economy. It should be noted that the surrounding communities also recognize the energy industry as their economic mainstay.

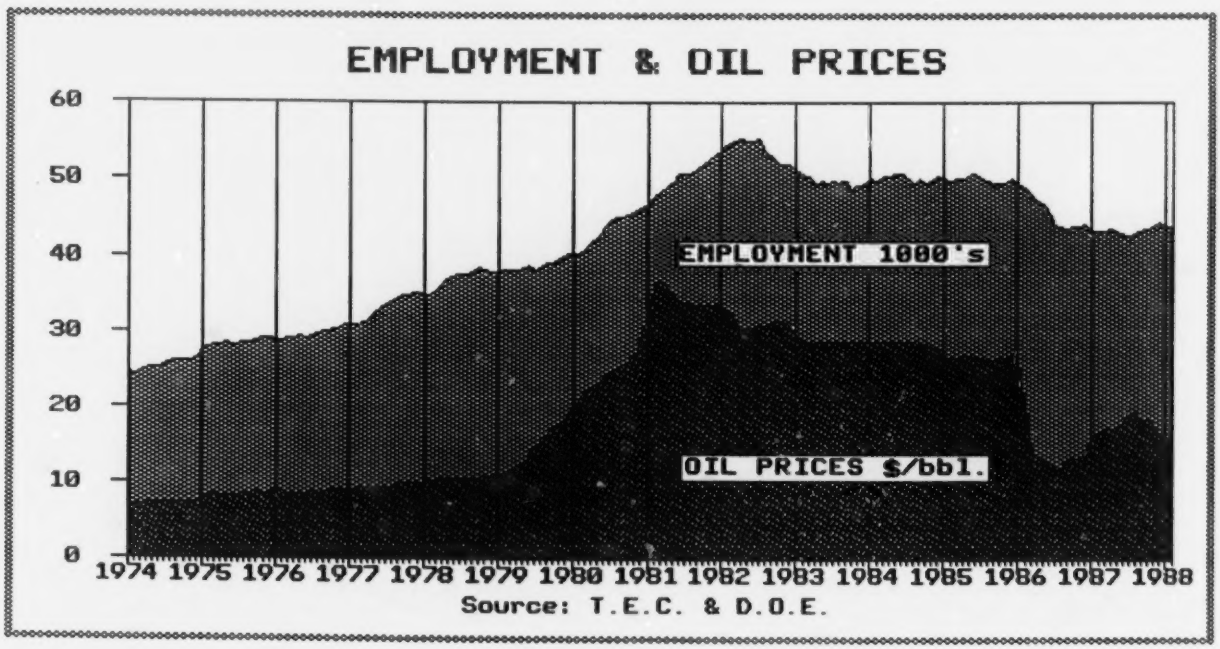
ECONOMIC BASE

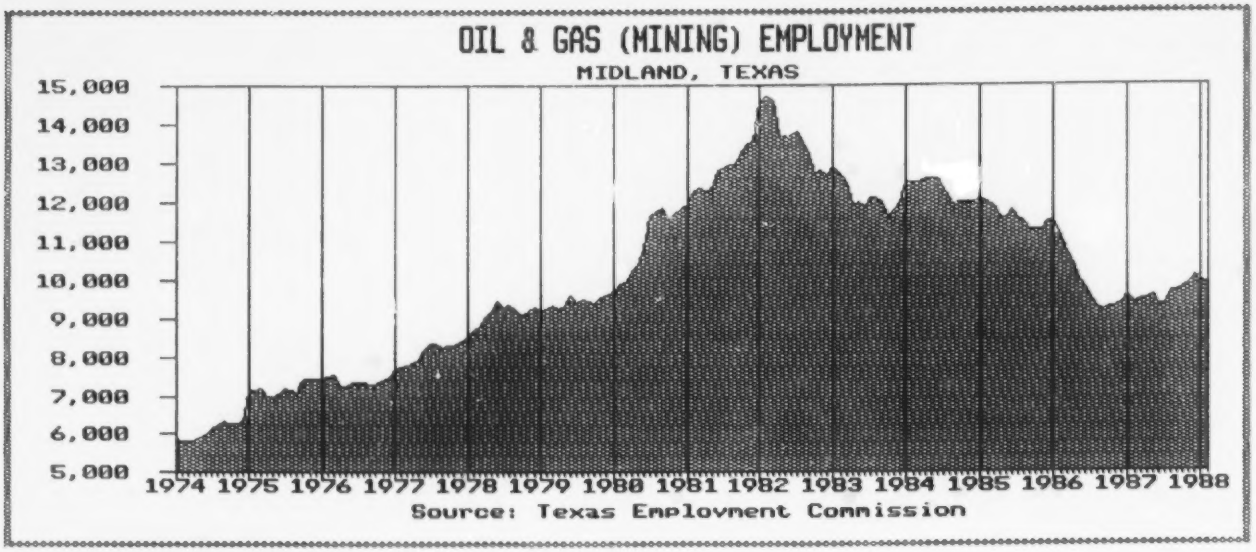
Midland, like most cities in the United States, is heavily dependent upon its "base" or "export" industries. These are the industries which produce goods and services for export from this region to other parts of the United States and the world. Proceeds from this "export" sector provide the ultimate source of revenue for other members of the community. These proceeds provide funds for the retail, construction, finance and other support sectors of the economy. In Midland, the "export" sector is characterized by the oil and gas exploration and production industry and manufacturing related to the "oil patch". The major exception to the rule is Texas Instruments which currently employs 1,100 workers.

Oil and Gas

In the past two decades, the oil and gas industry has seen two successive booms followed by two consecutive contractions and a modest recovery. The 1973-74 Arab Oil Embargo, created shortages and triggered dramatic increases in the cost of imported crude oil.

As result of the OPEC oil embargo of 1973 and the 1979 Iranian Revolution, the price of crude oil and competing energy sources showed rapid increases. Because of the Arab Oil Embargo, domestic crude oil prices more than doubled from an average of $3.48 per barrel in 1972 to $7.46 in November of 1974. With the revolution in Iran and the deregulation of crude oil





Oil & Gas Employment	
1970	6,423
1971	6,338
1972	6,212
1973	6,008
1974	6,068
1975	7,186
1976	7,359
1977	8,077
1978	9,096
1979	9,398
1980	10,946
1981	12,763
1982	13,642
1983	12,125
1984	12,308
1985	11,625
1986	9,958
1987	9,625

prices in the United States, prices increased from $11.00 at the end of 1978 to three and one-half times that level in early 1981. Domestic prices peaked at $36.97 in March 1981. From that point prices declined to $33.51 at the end of the year. Prices continued their descent to $30.80 at the end of 1982 and $28.62 per barrel at the end of 1983. Prices remained stable in 1984 and dropped only another dollar in 1985 before plunging to $12.99 in May of 1986. Since then, there has been a recovery to near $20 per barrel, and a subsequent decline to near $16 per barrel.

The factors which led to the post 1981 price reduction remain essentially in place. The world crude oil market continues to suffer from over capacity creating the potential for another price collapse. Saudi Arabia, however, has strong economic incentives to keep the price in the $18 - $20 per barrel range. At this price, higher-cost non-OPEC producers like the United States will not be able to replace production with new reserves and OPEC's market share will continue to increase.

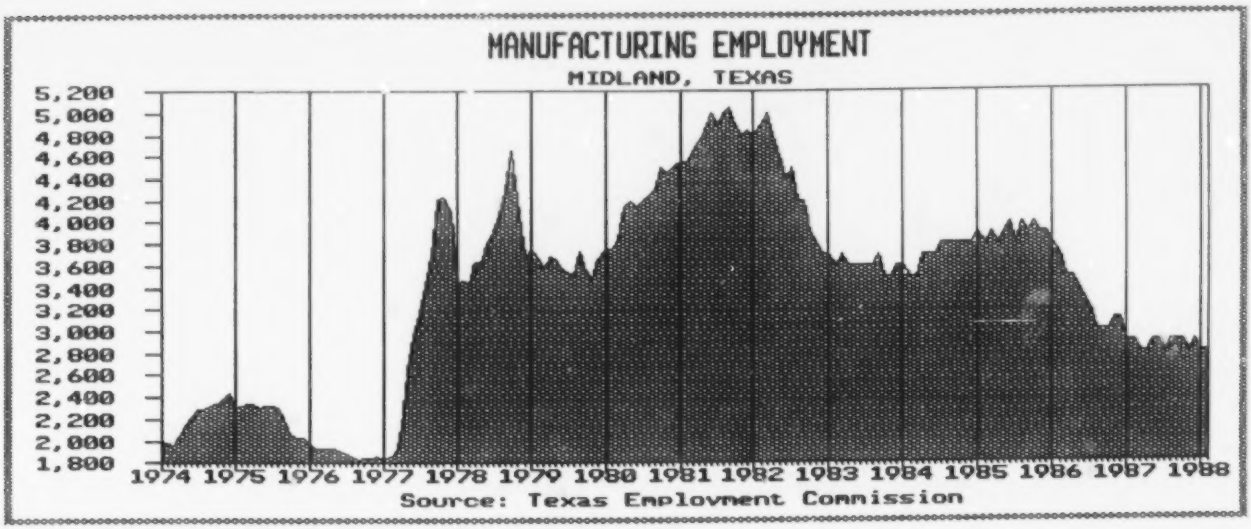
The decline in crude oil prices had a significant impact on crude oil production and reserves and on the value of production and reserves. Area production in Texas Railroad Commission Districts 7C, 8 and 8A declined six percent from 516 million barrels in 1981 to 484 million barrels in 1983. Production continued to decline to 457 million barrels in 1986. The estimated value of the area's production fell from $18 billion in 1981 to $14 billion in 1983. By 1986, the value of production had dropped to under $6 billion. The value of reserves displayed similar behavior. The total value of reserves in RRC districts 7C, 8 and 8A dropped from $185 billion in 1982 to $145 billion in 1983. By the end of 1986, with the dramatic decline in prices, those reserves were valued at $63 million.

At the peak of oil and gas employment in early 1982, 14,600 people were employed for wages and salaries in the oil and gas industry. By September 1984, that number had declined to 12,000 and currently stands at 8,800. The recent contractions have returned the industry to 1978 levels of employment, effectively erasing the gains since that period.

Manufacturing

Manufacturing employment showed similar declines. At its peak in 1981, manufacturing

Wage & Salary Employment	
1970	22,516
1971	22,758
1972	23,204
1973	24,053
1974	25,361
1975	28,326
1976	29,491
1977	33,017
1978	36,867
1979	39,521
1980	43,342
1981	50,229
1982	53,892
1983	49,750
1984	50,183
1985	49,967
1986	45,733
1987	43,308



Manufacturing Employment	
1970	1,207
1971	1,406
1972	1,532
1973	1,872
1974	2,198
1975	2,233
1976	1,891
1977	3,012
1978	3,858
1979	3,618
1980	4,171
1981	4,821
1982	4,400
1983	3,608
1984	3,708
1985	3,900
1986	3,300
1987	2,867

employment in Midland stood at 5,000. It dropped to 3,800 by September 1984 and currently stands at 2,800. In the absence of the Texas Instruments plant, the decline would have been even more precipitous. Oil and gas related manufacturing responds to price changes within two to four months. The rapid response is due to the fact that most materials and equipment used by the industry are utilized during drilling or completion of wells. It is not a coincidence that rig count, the most commonly quoted measure of drilling activity, also lags oil prices by an average of three months.

It is important to re-emphasize the contribution made by Texas Instruments, and other companies not related to the oil industry, to employment stability. Midland's sister city Odessa, which is not as diversified in its manufacturing, experienced an employment decline of sixty-four percent. By comparison, Midland encountered a forty-four percent reduction in its manufacturing work force.

The significance of diversification has not been lost on the Midland business community which is now making noteworthy efforts to diversify its economic base.

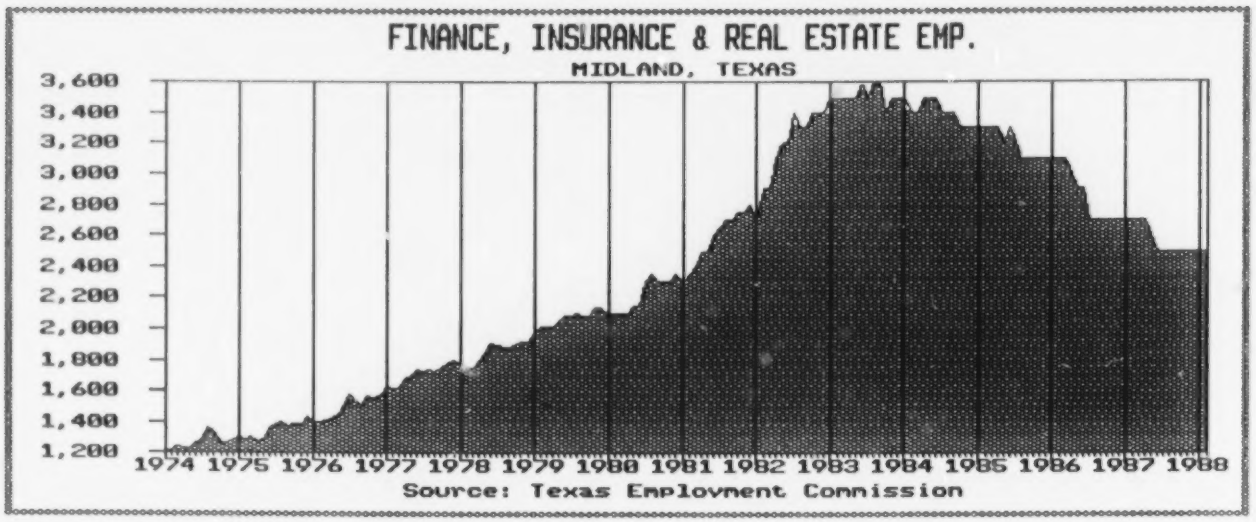
DEPENDENT SECTORS

The rise and fall in the base of the Midland economy affects all other sectors of the local economy. Since 1983, the ripple effect of crude prices has resulted in over twenty apartment complex bankruptcies and four bank failures in Midland alone.

Finance, Insurance and Real Estate

From 1978 to 1983, employment in finance, insurance and real estate practically doubled reaching 3,500 by the end of the period. Contraction in demand for housing and the restructuring of the financial community caused a decline in jobs to 2,500 by the beginning of 1988. Because employment in this area responds more slowly than other segments of the local economy, the modest recovery of 1987 will

Finance, Insurance and Real Estate Employment	
1970	1,186
1971	1,180
1972	1,166
1973	1,192
1974	1,268
1975	1,348
1976	1,492
1977	1,705
1978	1,848
1979	2,062
1980	2,217
1981	2,583
1982	3,183
1983	3,517
1984	3,408
1985	3,200
1986	2,858
1987	2,575



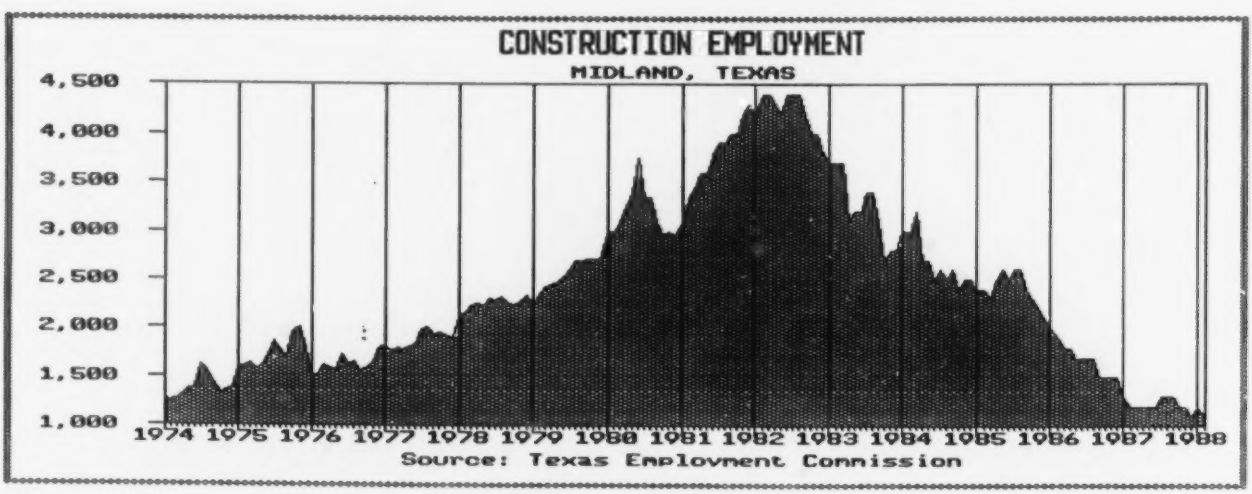
Construction Employment	
1970	1,068
1971	1,046
1972	1,208
1973	1,401
1974	1,382
1975	1,736
1976	1,619
1977	1,875
1978	2,258
1979	2,551
1980	3,183
1981	3,767
1982	4,225
1983	3,233
1984	2,683
1985	2,408
1986	1,692
1987	1,225

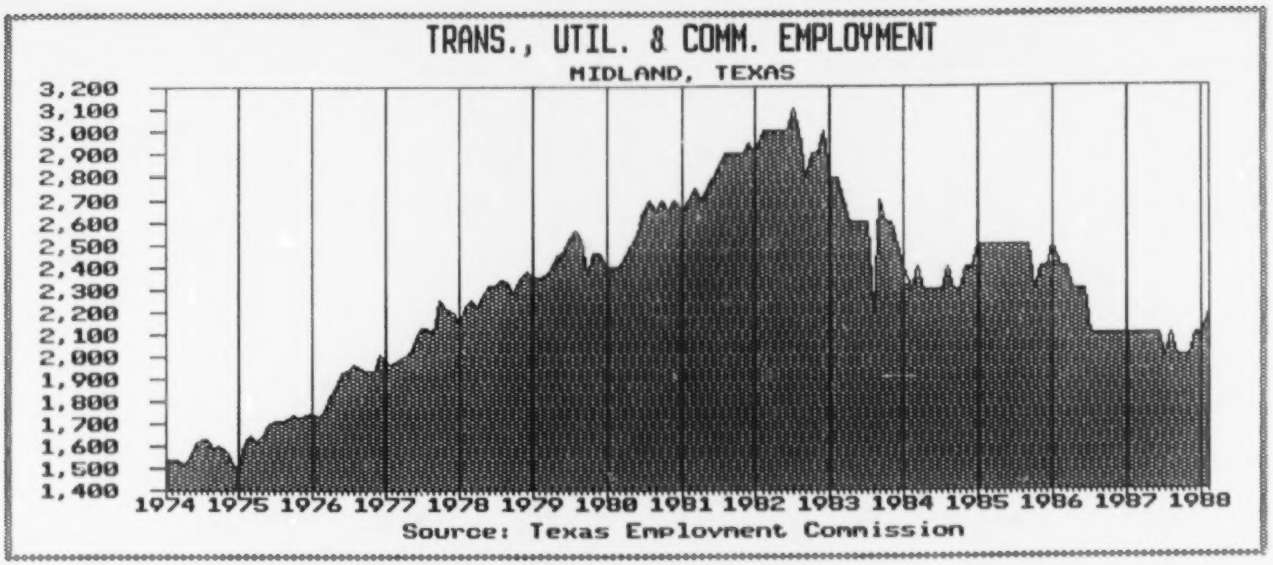
result in improvement for this sector sometime in 1988.

Construction

The most volatile of the dependent sectors of Midland's economy is construction. The reason for this volatility is that the demand for new housing and other buildings is dependent upon the demand for the stock of houses or buildings. Once there is a sufficient stock in the market, demand for construction falls precipitously.

Construction employment dropped from a peak of 4,400 in 1982 to 2,600 in September 1984. The construction industry currently employs 1,600 people, with little prospect for significant short term recovery. Most work in this sector will continue to emphasize remodeling and renovation in contrast to construction of new buildings which characterized the activity in the first half of the decade.



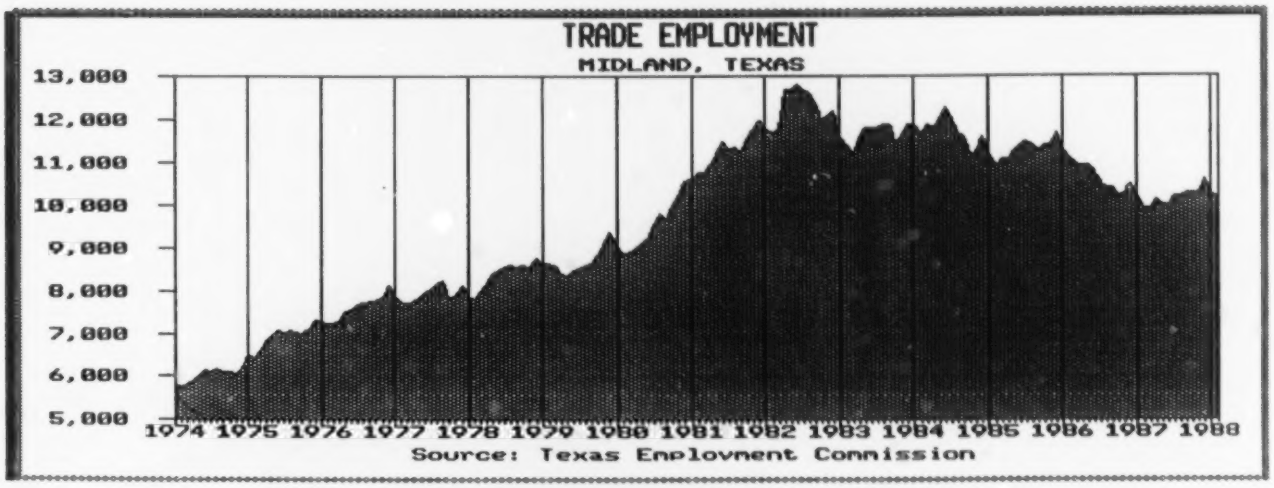


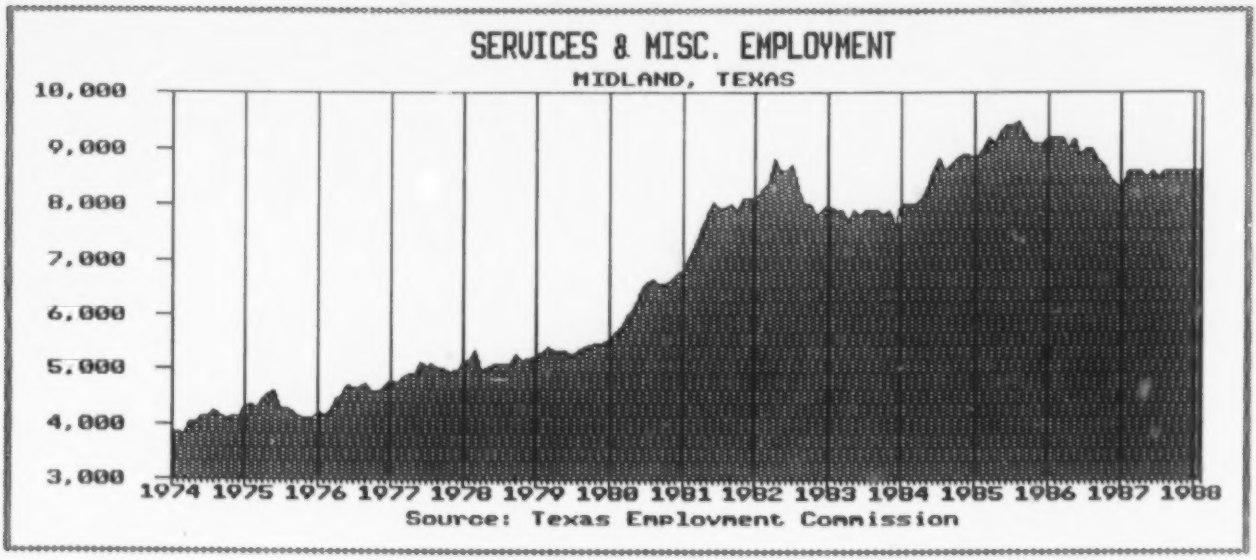
Transportation, Communication and Utilities Employment

1970	1,420
1971	1,444
1972	1,391
1973	1,457
1974	1,570
1975	1,673
1976	1,883
1977	2,087
1978	2,288
1979	2,437
1980	2,563
1981	2,813
1982	2,967
1983	2,608
1984	2,342
1985	2,467
1986	2,233
1987	2,067

Transportation, Communication and Utilities

Employment in this segment of Midland's economy increased from 2,100 in 1978 to 3,000 in 1982. Since 1982, the number of jobs in this category has receded to the 1978 level. Much of the drop can be attributed to lower levels of activity in trucking and airline companies. The communication industry has received a boost from the establishment of a new communications firm in Midland. ClayDesta Communications, a Midland based long distance telephone company, started in August, 1984 with six employees. It has increased in size to employ 150 people in Midland and an additional 200 in other cities in Texas. Probably, more than any other firm, ClayDesta typifies the trend in West Texas. The trend is away from new oil and gas related businesses and toward the service industries.





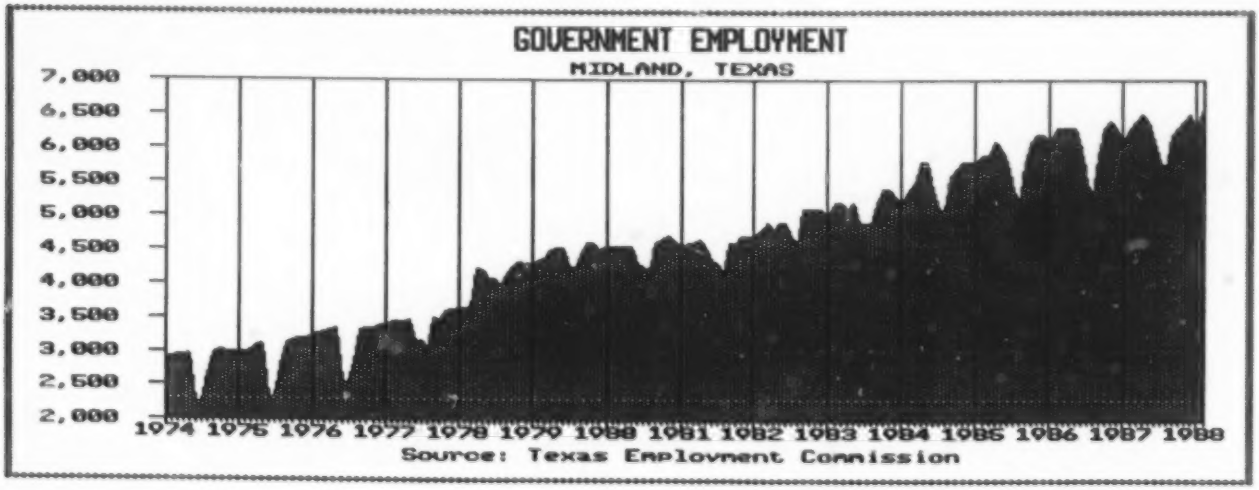
Trade Employment	
1970	5,078
1971	5,147
1972	5,346
1973	5,553
1974	6,008
1975	6,901
1976	7,576
1977	7,919
1978	8,346
1979	8,673
1980	9,492
1981	11,246
1982	12,292
1983	11,667
1984	11,742
1985	11,308
1986	10,683
1987	10,167

Trade

Trade employment has shown more resilience than other areas of the economy. The number of jobs in this sector grew from 7,900 in 1978 to 12,300 in 1982. Since that time it dropped 2,200 jobs to 10,200. The majority of the loss was in wholesale trade employment. Retail trade maintained much of its strength due to the fact that Midland, in spite of its recent economic problems, continues to rank among the top cities in the United States in effective buying income. Lower housing costs have also contributed to the maintenance of a high level of discretionary income.

Services

Many of the citizens of Midland who lost jobs in the oil and gas industry opened their own businesses. This fact, together with the general trend in the country toward service sector employment, caused this segment



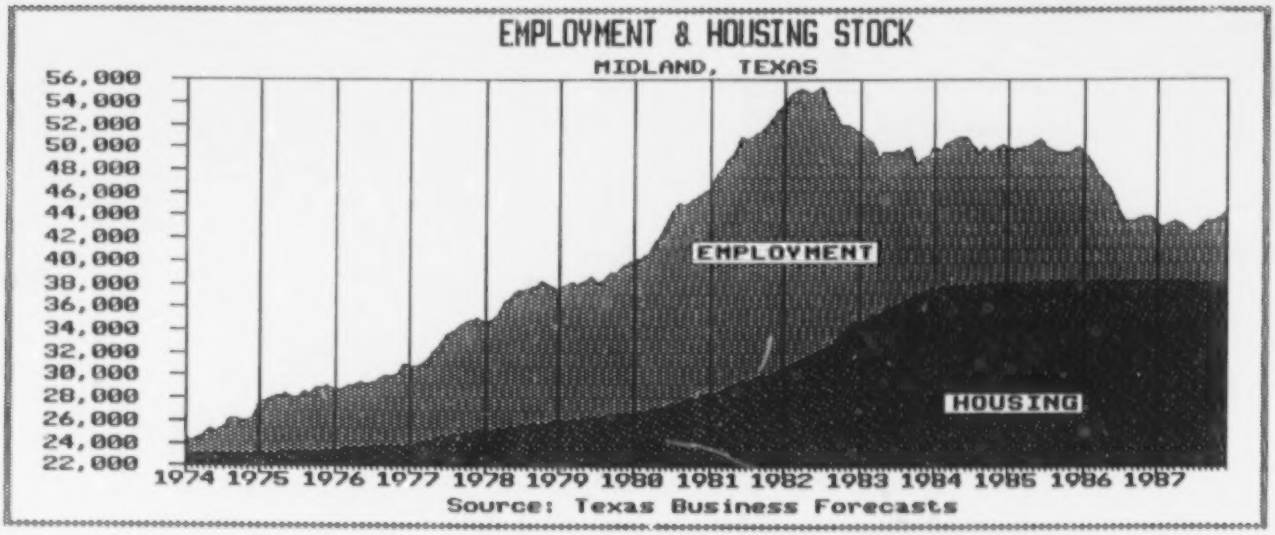
Services and Miscellaneous Employment	
1970	3,496
1971	3,488
1972	3,492
1973	3,669
1974	4,053
1975	4,309
1976	4,520
1977	4,954
1978	5,134
1979	5,358
1980	6,263
1981	7,708
1982	8,292
1983	7,850
1984	8,475
1985	9,192
1986	8,925
1987	8,558

to peak several years after most other components of the economy at 9,200 in 1985. Since that period, service sector employment slipped a mere 600 jobs.

Government

As is often the case in both the national and the local economies, government employment appears to bear little relationship to the economy as a whole. Although characterized by noticeable seasonal swings, government employment finished 1987 at an all-time high of 6,600. Certainly employment has been assisted by FDIC in Midland, which currently employs almost 500 workers.

Government Employment	
1970	2,639
1971	2,709
1972	2,858
1973	2,903
1974	2,813
1975	2,941
1976	3,151
1977	3,388
1978	4,039
1979	4,426
1980	4,508
1981	4,529
1982	4,892
1983	5,142
1984	5,517
1985	5,867
1986	6,083
1987	6,225



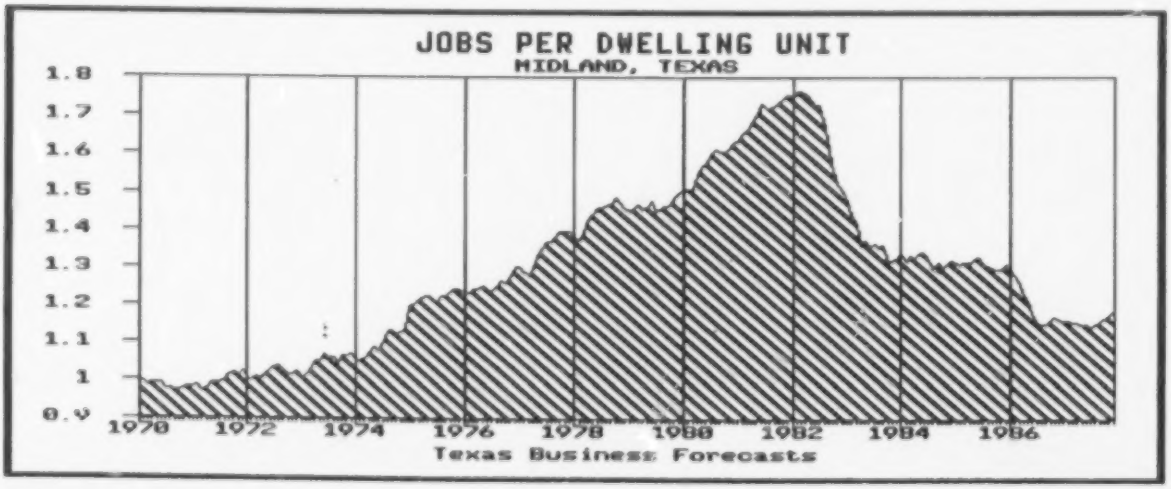
REAL ESTATE

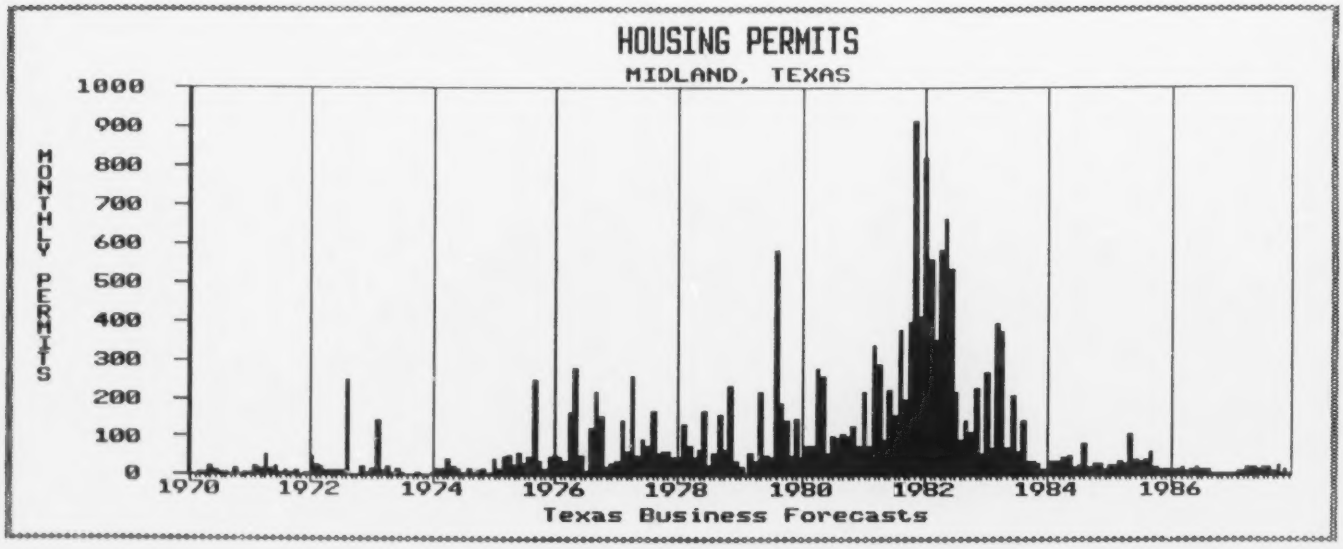
The rapid increase in employment in Midland in the 1970's and early 1980's, caused a shortage in residential and commercial real estate. This shortage led to rapid escalation of prices of these properties. The increase in demand and prices caused a rapid increase in building activity. Building activity in Midland, as elsewhere, lags the rest of the economy. The primary reason for this lag is the delay from the initial decision to build, caused by the interval necessary to obtain the land and financing, coupled with the completion time of the project. Because of this time delay, the peak in construction activity lagged crude oil prices by almost eighteen months. The graph of housing starts shows, that during the twelve months of peak activity, the total stock of housing was increasing at a rate of twenty percent per year.

Housing

Since the supply of housing is determined by the total number of housing units in place rather than the number of new units, it is necessary to examine the total number of dwelling units in the market.

The accompanying graph displays an estimate of the total number of units in the market. The estimates in this graph come from a combination of Bureau of Census data for 1980 and the





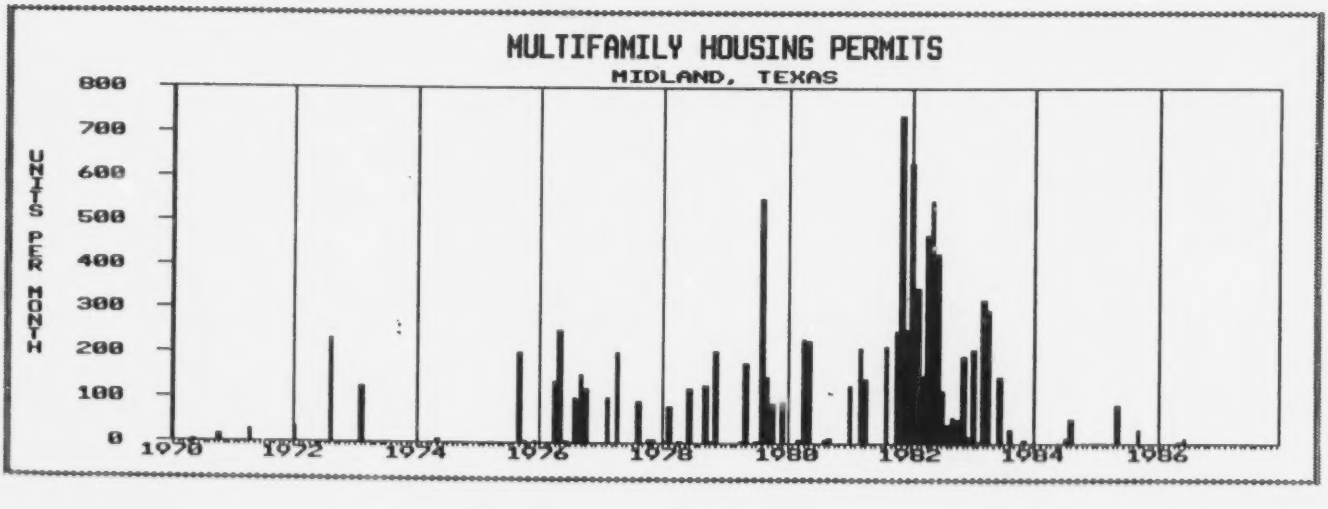
housing start data with appropriate delays for building completion. The graph also shows the number of employees in Midland for each month during the same period. It should be noted that the number of homes in place continued to show substantial increases for two years after employment had peaked.

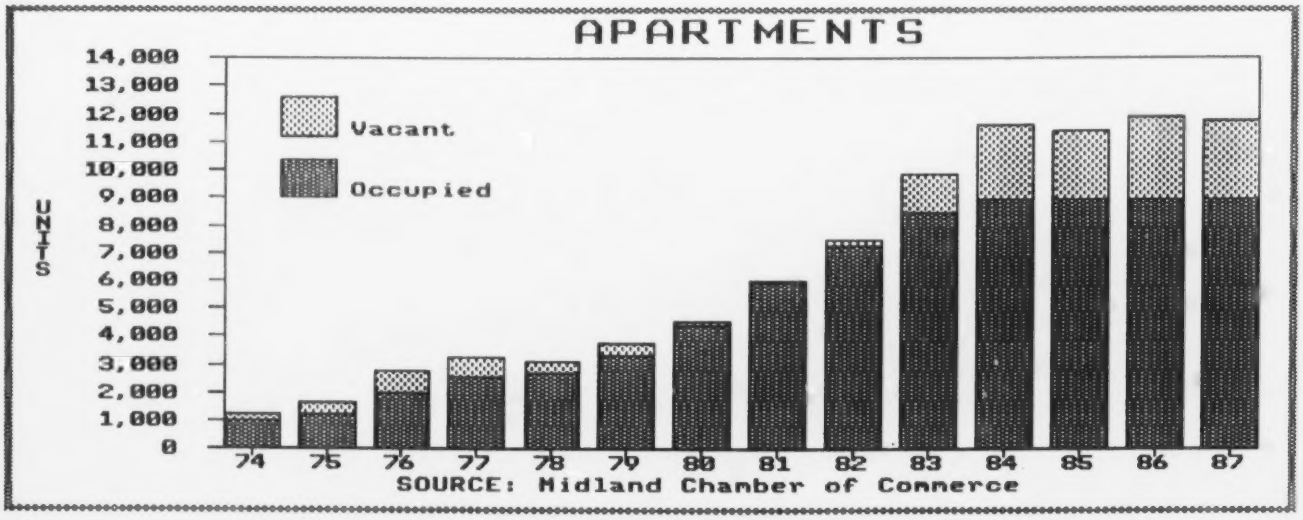
The impact on the market can be assessed by comparing the ratio of people employed to the stock of housing. This ratio is an appropriate measure for this market since it is wage earners that create the primary demand for housing in this market and the number of existing homes that create the primary supply. In the first half of 1982, the ratio of jobs to homes peaked at 1.82 and by September 1984 that number had declined to 1.32. The continuing downturn in the economy led to further declines so that by the end of 1986 the ratio stood at 1.15. The decline in this ratio illustrates the stress created in the Midland real estate market. The decline in employment during the period of increases in housing caused a decline in the value of housing.

The drop in housing values mirrored the drop in the value of commercial real estate, in particular, office complexes and retail space.

Office Space

In 1978, Midland had 2.2 million square feet of office space. In response to the rapid growth

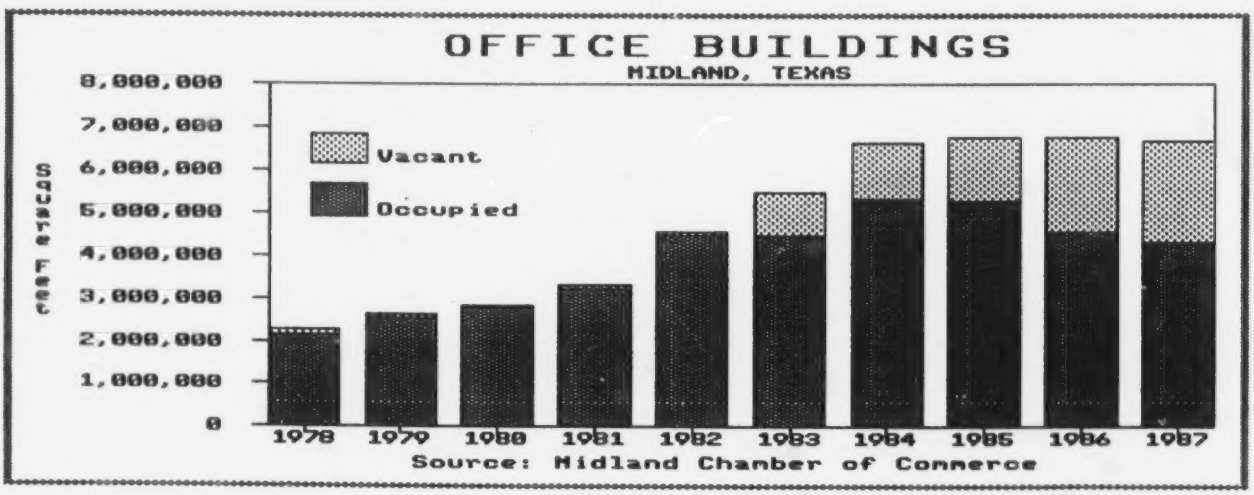


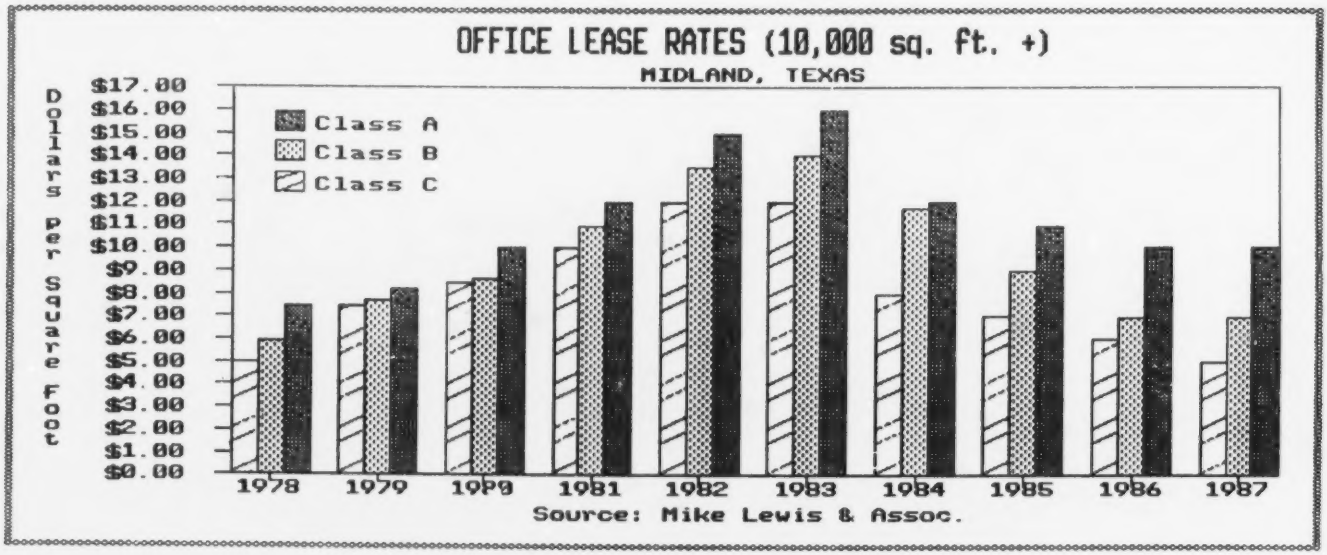


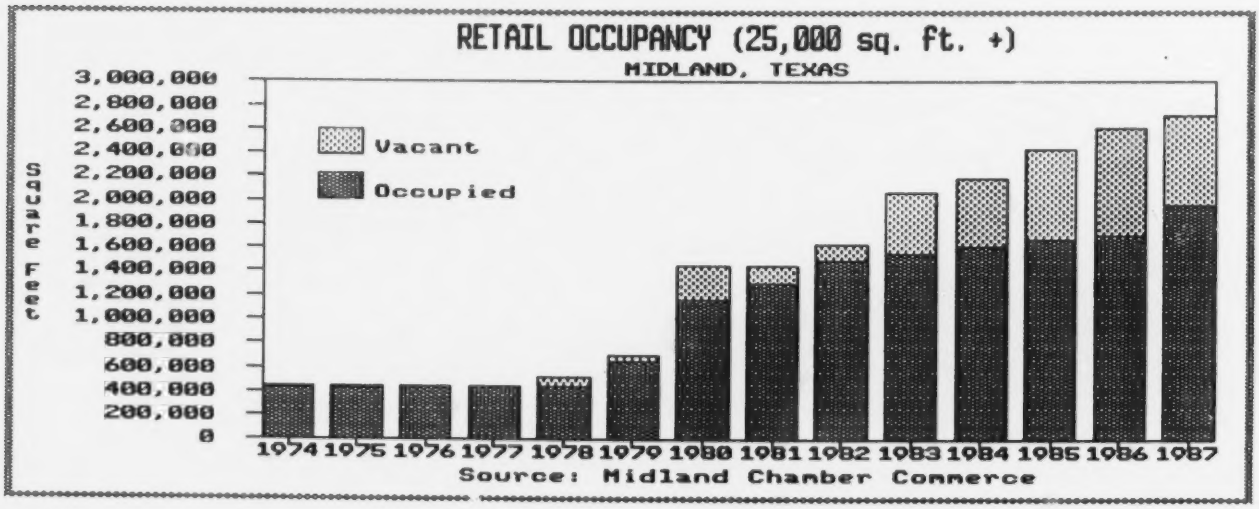
in population experienced during the late '70s and early '80s, Midland added almost one million square feet per year to its inventory of offices. As in the housing market, a combination of inflated employment statistics which were not corrected until 1985 and the natural delay between the decision to build and completion led to overbuilding. Construction of many complexes continued two to three years after employment peaked. Until the end of 1982, it appeared that available space would not ever be sufficient to meet the demands of Midland employers. In 1983 a combination of declining employment and construction levels appropriate to $40 per barrel of oil resulted in levels of occupancy dropping from 99 percent to 81 percent in a single year. In response to the surplus, lease rates began to drop from a median of $14 per square foot in 1983 to $9 per square foot in 1985. Oil prices declined precipitously to $12 per barrel in mid-1986, pulling occupancy rates down from 78 percent in 1985 to 67 percent in 1986. The recovery of crude oil to around $18 per barrel did not come soon enough to prevent a slight deterioration in 1987 to 65 percent occupancy with rents at $7 per square foot.

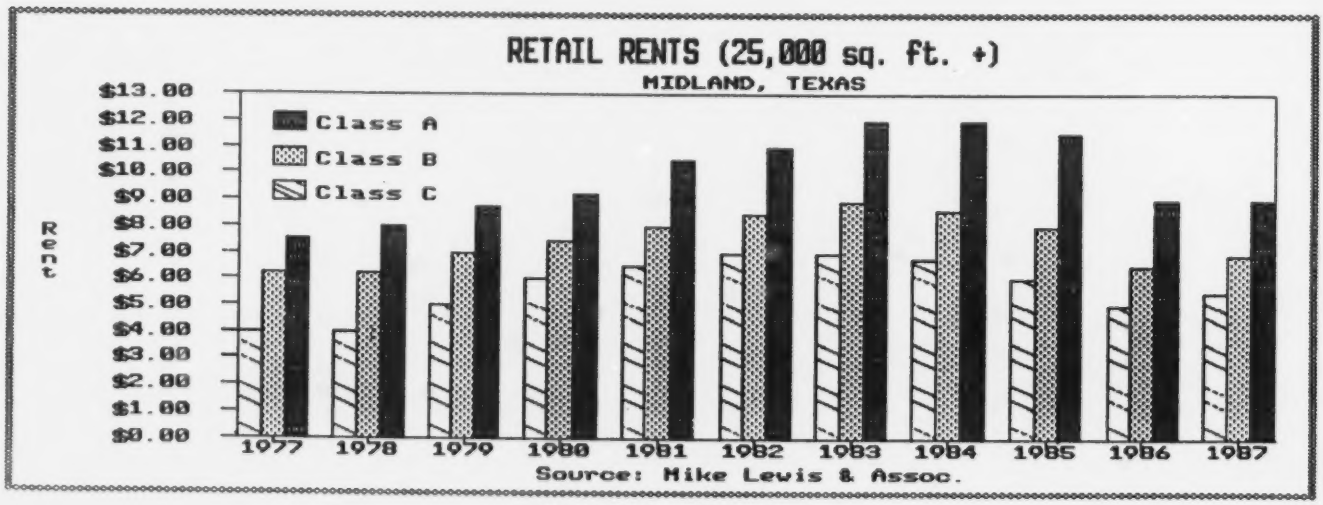
Retail Centers

In the ten year period from 1968 to 1978, total retail space in Midland increased a mere 110,000 square feet from 413,000




OFFICE LEASE RATES (10,000 sq. ft. +)
MIDLAND, TEXAS
Dollars per Square Foot
$17.00
$16.00
$15.00
$14.00
$13.00
$12.00
$11.00
$10.00
$9.00
$8.00
$7.00
$6.00
$5.00
$4.00
$3.00
$2.00
$1.00
$0.00
Class A
Class B
Class C
1978 1979 1980 1981 1982 1983 1984 1985 1986 1987
Source: Mike Lewis & Assoc.


RETAIL OCCUPANCY (25,000 sq. ft. +)
MIDLAND, TEXAS
Square Feet
3,000,000
2,800,000
2,600,000
2,400,000
2,200,000
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Vacant
Occupied
1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987
Source: Midland Chamber Commerce


RETAIL RENTS (25,000 sq. ft. +)
MIDLAND, TEXAS
Rent
$13.00
$12.00
$11.00
$10.00
$9.00
$8.00
$7.00
$6.00
$5.00
$4.00
$3.00
$2.00
$1.00
$0.00
Class A
Class B
Class C
1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987
Source: Mike Lewis & Assoc.

to 523,000. In the five years from 1978 to 1983, almost 1.5 million square feet were added, quadrupling the retail space in Midland. In this five year period, Midland's retail space expanded by fifteen times the net expansion of the previous ten years. Although total leased space continues to increase every year, 1987 was the first year since 1982 that demand grew faster than the supply. By 1986, occupancy had reached an historic low of 65 percent and has shown a slight recovery since that time. Lease rates for retail space followed the pattern of the office market with lease rates bottoming in 1986. Median rates dropped $2.50 from the 1983 peak of $9.00 per square foot to $6.50 in 1986. Retail centers are, like office buildings and apartments, in many cases barely able to cover operating expenses at current rental rates and occupancy levels of 72 percent.

Over the past several years, many apartments, offices and retail centers have been returned to the hands of the lenders. Although the current low levels of profitability are certainly not good news for the owners, low rental rates and the decline in property values may be Midland's greatest long term asset. The low cost of doing business in Midland will be an integral part of attracting new business and industry to the area and will certainly play a significant role in the diversification of the West Texas Economy.

OUTLOOK FOR MIDLAND'S ECONOMY

Midland's recovery from the effects of the 1986 oil price decline is well under way. Crude oil future prices are above $18.00 per barrel in anticipation of cooperation between OPEC and non-OPEC producers of crude oil. If these prices are sustained, their effect will be felt in the local economy by the beginning of the second quarter.

In addition to a brighter outlook for energy prices, several other projects which are currently under way give promise of additional employment gains from non-energy related businesses. Significant efforts to broaden the base of the local economy are already in place.

The Midland Chamber of Commerce has initiated a venture capital group to assist emerging businesses in obtaining funding to aggressively approach new markets and to take advantage of existing opportunities. The Economic Development Department, in conjunction with its Odessa counterpart and the Private Industry Council, have played a significant part in supporting the efforts of the Midland/Odessa Health and Retirement Endeavor (MOHRE) to market the advantages of the area's temperate climate to retirees. Over 1,000 responses have already been received from their first national advertising campaign. These same groups have supported the Permian Basin Bid Center which was formed in 1986 to assist local businesses in obtaining government contracts. To date, these efforts have resulted in over 140 contracts totaling $5.7 million.

The Midland Economic Development Center, headquartered at Midland College, has helped numerous small businesses in solving marketing, start up and financial restructuring problems. The Center works with businesses through seminars, one-on-one assistance and the publication of area information. The University of Texas-Permian Basin has broken ground for the Center for Energy Research and Economic Diversification which will seek to improve energy technology and to assist in the diversification of the community.

Midland has been successful in attaining a U.S. Customs Port of Entry at the newly designated Midland International Airport. A Foreign Trade Zone designation for the area adjacent to the airport is currently pending.

The Economic Development Department of the Chamber of Commerce has recently established an aggressive Small Business Development Program to assist in the establishment and expansion of small businesses in the city. This department is encouraging oil and gas related services, such as credit card operations and computer services, to locate in Midland. The Midland Economic Development Company, Inc. funded by the city of Midland with Community Development Block Grant monies, is assisting small businesses by underwriting loans in targeted areas of the community. It should be noted that most of the jobs created in the United States come from small businesses. In addition there is increased emphasis on attracting manufacturing companies to locate in Midland.

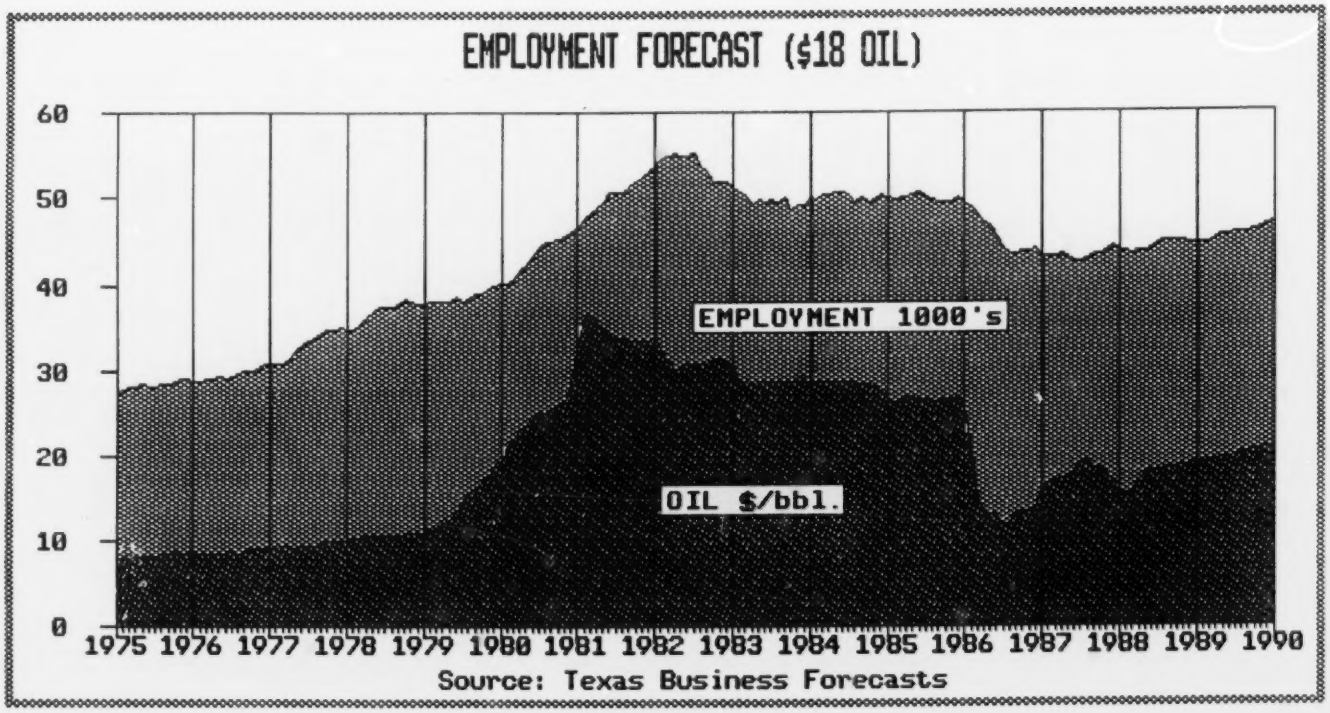
Although most of these projects are long term in their orientation, they have already had a positive impact on job creation and preservation. Because of the difficulty in accurately predicting the full scope and timing of the results of these enterprises, the following forecast of the Midland economy will be understated by the primary and secondary effects of these efforts.

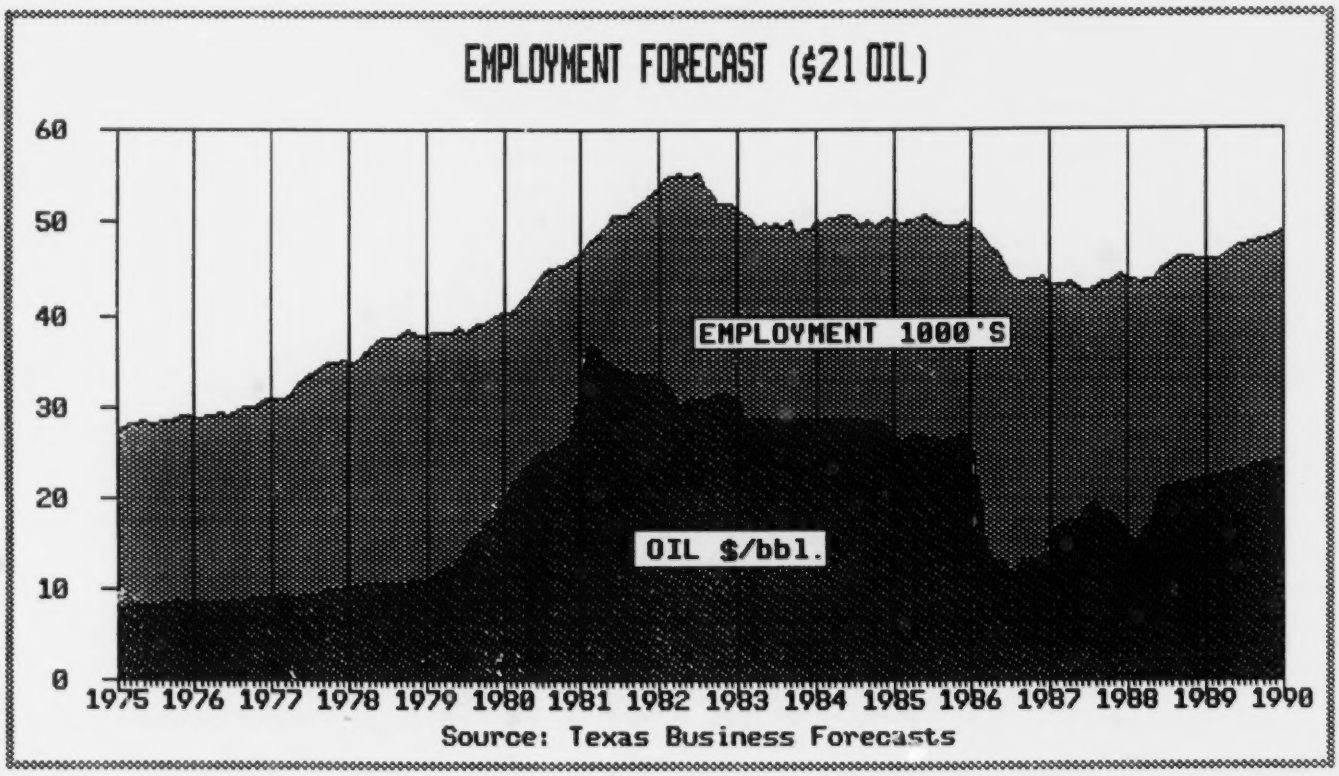
Because of the uncertainty of the international politics which exert control over oil prices, two scenarios are given for the future of the Midland economy. The forecast is based upon an econometric model of the Midland economy which was developed by Texas Business Forecasts. This model has shown a high degree of accuracy over the past few years in forecasting the outlook for the area economy. Under the first scenario the Saudi goal of $18 per barrel oil prices rising gradually to $21 by the beginning of 1990 is assumed. With this assumption employment growth over the two year period results in four to five percent average annual rate of growth.

The second scenario assumes OPEC is successful in forming a viable coalition with non-OPEC producers resulting in a mid-year jump in oil prices to $21 per barrel. In this case, Midland employment will show an average growth rate of six to seven percent over the forecast period.

Under either of these scenarios, Midland will see increased real estate activity and prices and increased levels of rents and occupancy in offices, retail centers and apartment buildings.

In summary, the recovery of Midland's economy appears certain, only the timing is in doubt. Attractive building prices and lease rates are almost certain to show these scenarios to be conservative in their outlook.


EMPLOYMENT FORECAST ($18 OIL)
60
50
40
30
20
10
0
EMPLOYMENT 1000's
OIL $/bbl.
1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990
Source: Texas Business Forecasts


EMPLOYMENT FORECAST ($21 OIL)
60
50
40
30
20
10
0
EMPLOYMENT 1000'S
OIL $/bbl.
1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990
Source: Texas Business Forecasts

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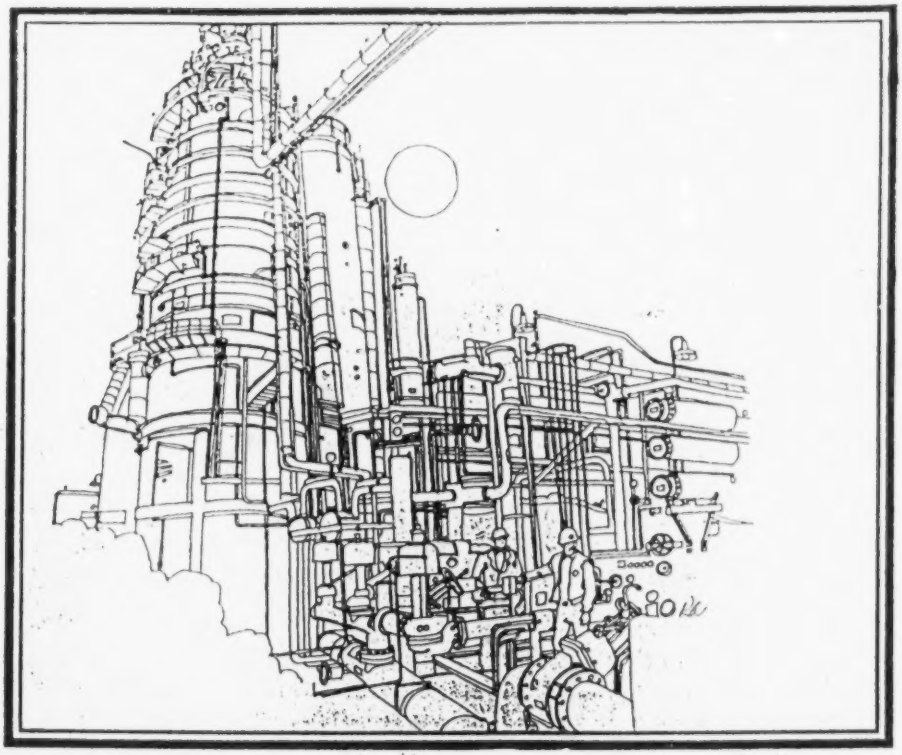
THE MIDLAND/ODESSA ECONOMY

FOUNDATION AND FUTURE



August 25, 1989

by
James L. Williams
Texas Business Forecasts

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Midland College

THE MIDLAND/ODESSA ECONOMY

FOUNDATION AND FUTURE

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The Business and Economic Development Center
of
Midland College

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The Permian Basin Private Industry Council.

The Permian Basin Economy has endured major upheavals over the past decade. The major sectors of our economy have suffered through a long period of recession and decline. While a return to past is not the ideal strategy for a prosperous future, understanding our past and our present is the only way in which we may predict and mold the future course of the Permian Basin economy. This report was published in order to provide the community with information of how present and past events are influencing the future.

The Business and Economic Development Center of Midland College would like to acknowledge the Permian Basin Private Industry Council for funding and James L. Williams of Texas Business Forecasts for authoring this study.

For further information on this publication or information on the Business and Economic Development Center and its many other publications, please contact:

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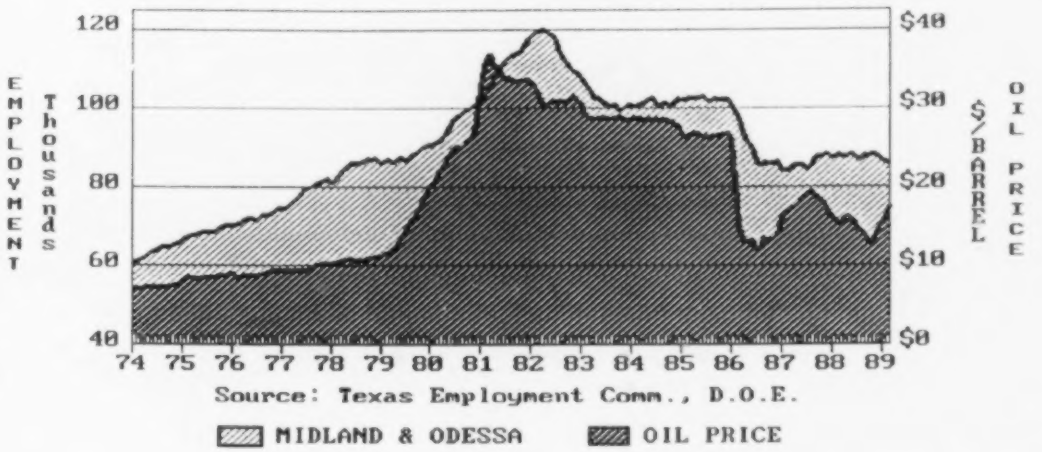


Graph 1.

*Number of people employed for a wage or a salary. Excludes self- employed and agricultural workers.

INTRODUCTION

The cities of Midland and Odessa are located in the heart of the oil producing region known as the Permian Basin. For over half a century, oil and natural gas exploration and production have dominated the economy of the region.

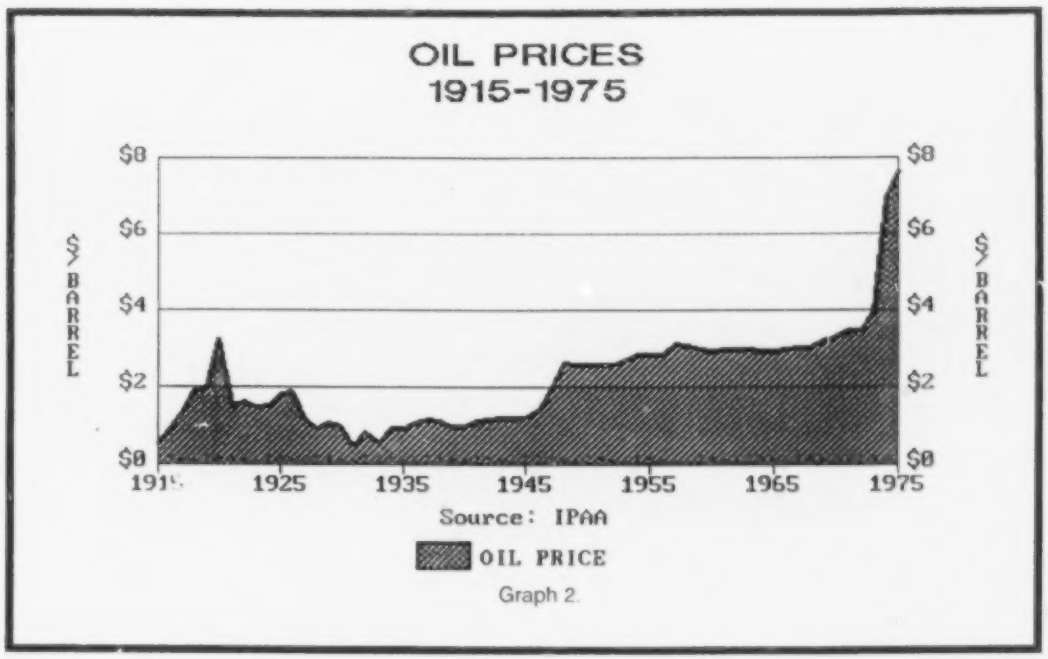
The graph of employment and crude oil prices at the top of the page demonstrates the direct link between the economy of these two cities and the fortunes of the energy industry. The health of the domestic energy industry is determined in the main by two factors: (1) international economics and politics and (2) national tax and energy policies. As a consequence, the economy of the Permian Basin is in the hands of others.

The purpose of this booklet is to explain the primary factors which currently influence the economies of Midland and Odessa and to discuss the outlook and the options for the future. First, we will examine the history of the last fifteen years as a basis for understanding the internal workings of the local economy and the impact of the external environment. This will also provide insight into steps necessary to dampen the effects of fluctuations in the energy industry. Second, we will investigate the short term future and identify long term opportunities for the diversification of the region's economy.

Oil Industry

During the 1973-1974 Arab Oil Embargo, crude oil prices in domestic markets rose from an average of $3.48 per barrel in 1972 to $7.46 in November of 1974. Between 1978 and 1981, as a consequence of the revolution in Iran and the deregulation of crude oil prices in the United States, prices increased from $11.00 at end of 1978 to over three times that price in early 1981. Domestic prices to refiners crested at $36.97 in March 1981. From that point, prices declined almost $6.50 per barrel by the end of the year. Prices continued to decline but at a much slower pace to below $27 per barrel by the end of 1985. Over-production by OPEC, primarily Saudi Arabia, caused prices to fall to $12.99 per barrel by May 1986. Since that, time oil prices have oscillated between $13 and $20 per barrel.

Price fluctuations are not new to the energy industry. The most vivid example comes from the early history of commercial use of oil in the United



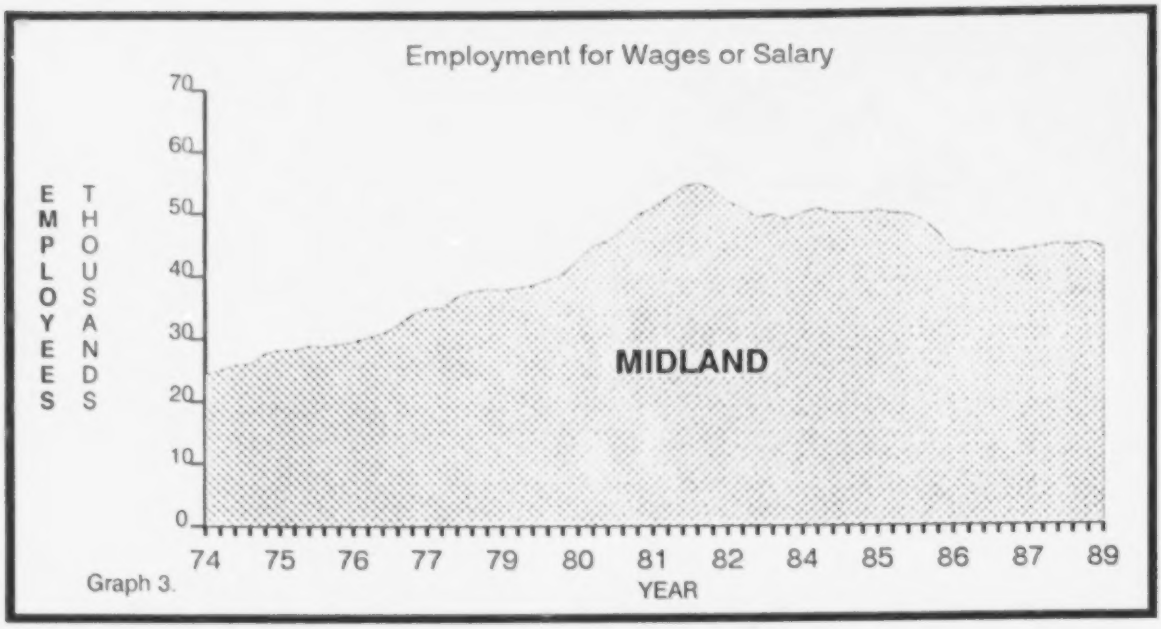
Graph 2.

States. The advent of the industrial revolution caused an increase in demand for lubricants. By the 1850's whale oil, castor oil and vegetable oils were unable to meet the growing demand of the industrial revolution. Petroleum was recognized as a lubricant when oil from a salt well in Tarentum, Pennsylvania was successfully used, in combination with sperm oil, as a lubricant in a Pittsburgh factory in 1845. Within a few years, this oil was being refined for use in lamps. Petroleum began to compete with coal-oil and shale-oil which was selling for thirty to forty dollars per barrel.

The high price of competing oils encouraged the drilling of the first well in the United States, which was completed in 1859, by Colonel E. L. Drake. U.S. production totaled 2,000 barrels in 1859 with crude prices around $20 per barrel. The price of crude and Drake's success motivated others to drill for oil. By 1862, annual production had increased to over 3 million barrels. Production increases rapidly out-paced demand. Prices dropped from $20 per barrel in September, 1859 to ten cents in December, 1861. The boom/bust cycle has characterized the industry since its inception.

Prices showed a 600% increase from 1915 to 1920, but once again production outstripped demand with major discoveries in Oklahoma, California and Texas. These discoveries included the West Texas fields known collectively as the Permian Basin. The increased availability of crude oil along with the depressed economy resulted, by the early 1930's, in a price decline to the levels experienced in 1915. Some regions, notably the Permian Basin, which were far from markets or had lower quality crude oil, saw prices fluctuate even more than the market as a whole.

The discovery of the East Texas field in the early 1930's put downward pressure on crude prices and brought about regulation, on the part of the Texas Railroad Commission, to limit production in an attempt to stabilize prices. These efforts were, to a large part, successful. During the post war period, the railroad commission was successful in maintaining prices in the $2.50 to $3.25 per barrel range. The success was, however, at the expense of producers who, in many cases, were limited to thirty percent of a well's productive capacity. The effect of this proration was felt in the Permian Basin economy. In the early 1960's, homes could be purchased by



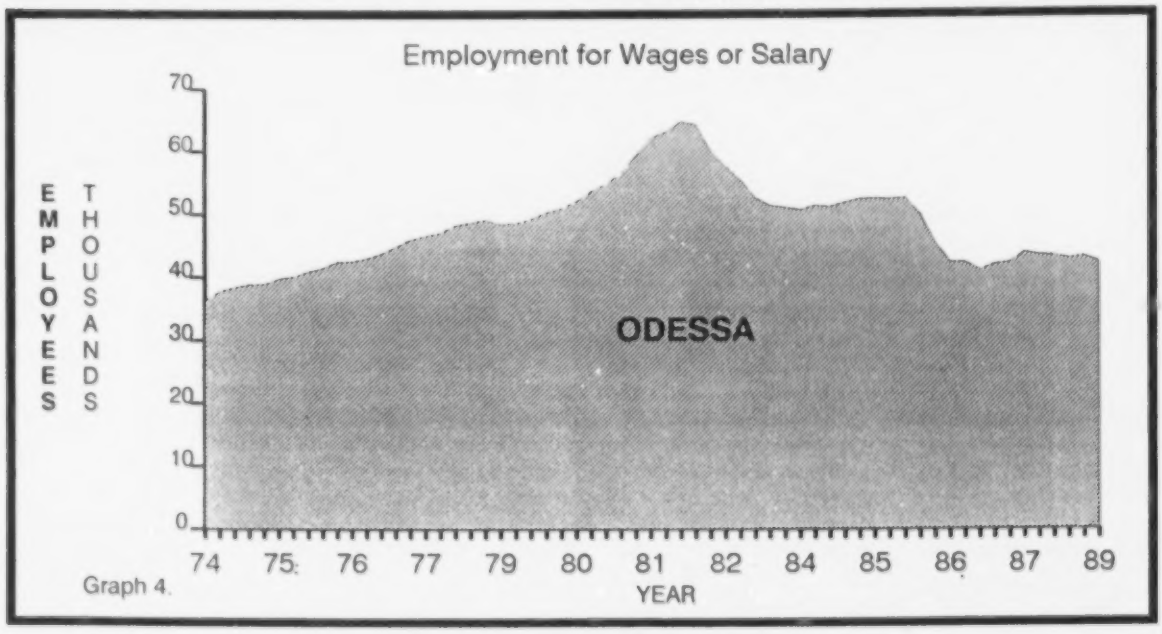
Graph 3.

putting a dollar down and taking up payments.

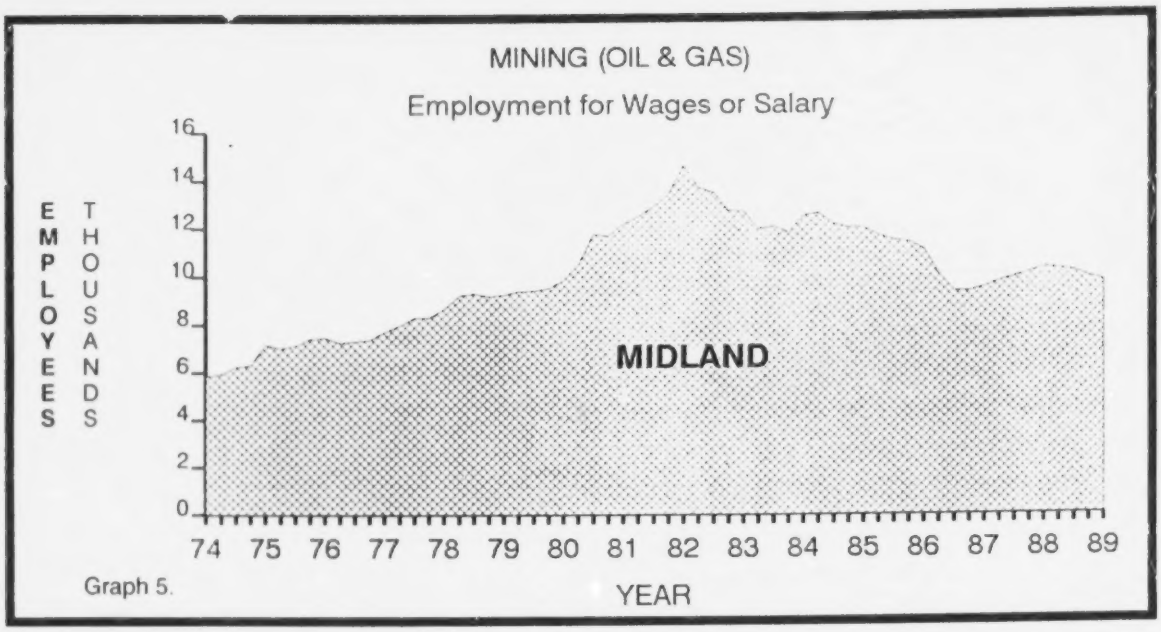
This cycle was repeated in the wake of the two successive price downturns of the 1980's. Declining employment and population led to lower occupancy and rental rates for income properties causing the value of office buildings, commercial property and apartments to plunge. A large number of homes were sold for less than the outstanding balance on the mortgage.

EMPLOYMENT

Employment in Midland and Odessa has followed the price of crude oil up and down over the past fifteen years. In 1973, the number of people working for a wage or a salary in Midland and Odessa stood at 58,500. By 1982, the number of employees had grown to 115,000, almost doubling in nine short years. Following the price decline, much of the gain was lost. The first



Graph 4.

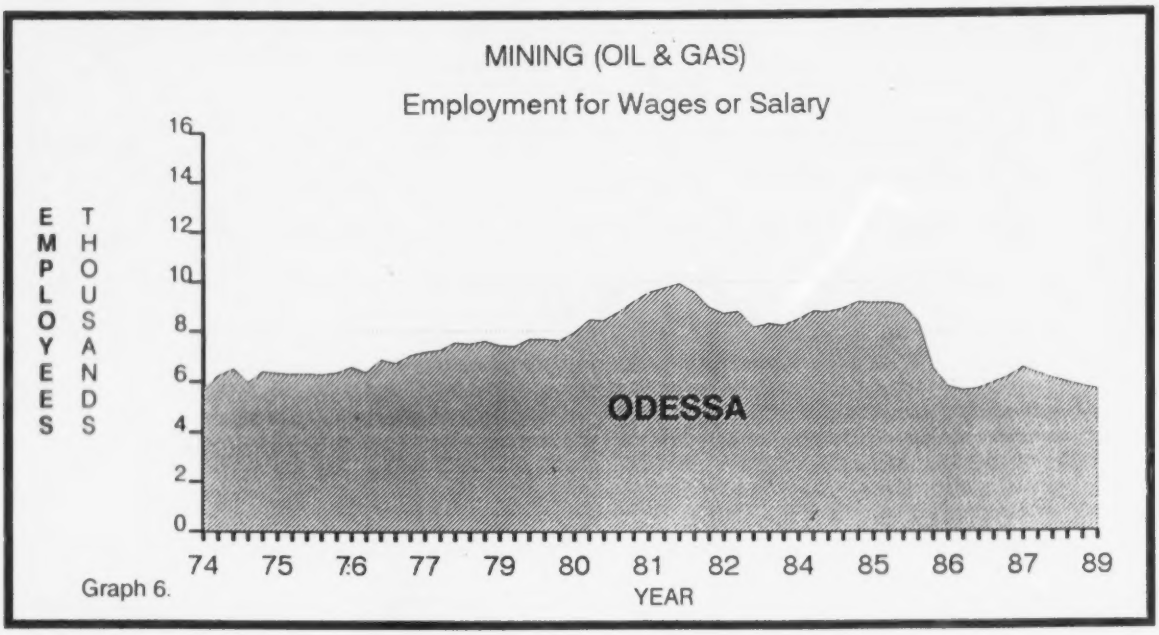


Graph 5.

quarter average for 1989, showed 87,500 employees in the two cities.

When viewed over the period from 1974 to 1988, Midland and Odessa experienced average annual growth rates in employment of 4.1 percent and 1.0 percent, respectively. Between 1974 and 1982, Midland grew at an average annual rate of 9.9 percent. During that same period, Odessa's employment gains averaged 6.3 percent. As the strength of the economy diminished with receding oil prices, employment fell from its 1982 peak to 44,200 in Midland and 43,200 in Odessa in the first quarter of 1989.

In order to gain a better understanding of the history of the area's economy, we will examine each major sector of the economy in terms of employment. The primary base of the Permian Basin economy consists of the oil and gas sector



Graph 6.

and the manufacturing sector. We will investigate these two segments first.

OIL &.GAS

In 1973, 6,000 people were employed in the oil and gas industry in Midland. That same year there were 5,300 working in that industry in Odessa. By 1982, oil and gas employment had increased to over 13,500 in Midland and to 9,300 in Odessa. Odessa briefly passed 10,000 for one month at the end of 1981. Over this period, Midland and Odessa enjoyed annual growth rates of 10.6 percent and 5.4 percent, respectively. Crude oil price is the underlying force behind most of the changes in oil and gas employment. Typically, a significant change in energy prices shows up in this sector's employment within three to six months.

During the 1973-1981 price increase, the lag between oil price movement and employment was often as long as nine months. Though people were rapidly moving from depressed areas of the U. S., drawn by news of the area's prosperity, demand for employees greatly out-paced supply. The price drop in 1981, together with the continuing but more modest declines over the next three years, lead to a reversal in the industry's employment trend. Profits turned to losses for many companies. Major oil companies and independents alike were compelled to reduce their work force. Many independents were forced into bankruptcy during this period. Some were forced out of business entirely and many continued to function under the protection of the Federal Bankruptcy Courts. Therefore, the decline in employment was a consequence of staff reductions in surviving companies and a total dissolution of others.

When prices plummeted again in early 1986, many companies which were on the edge had to close their doors. Those which remained did not require as long to make staff reductions as in the past. Instead of a lag of several months, crude oil prices had an immediate impact on employment. The continuing volatility in prices and the concomitant uncertainty resulted in lower levels of investment in the oil and gas industry. Since 1982, oil and gas employment in Midland declined at an average annual rate of 4.8 percent. By 1988, employment in this sector had settled out at a little over 9,700. In contrast, Odessa lost oil and gas jobs at a rate of 7.1 percent per year over the same period, dropping to about 6,000 in 1988.

The greater rate of growth in Odessa in the 1974-1982 period and faster decline in the 1982-1988 period, point out one of the major differences in the two communities. Odessa's oil and gas employment is more concentrated in drilling and completion than is Midland's. Because drilling and completion is the most capital intensive part of the industry, it is subject to greater fluctuation in activity as are most capital intensive businesses. This is because the attractiveness of an investment depends upon the expected rate of return.

Since Midland is more production oriented, a large percentage of its employed will be retained in order to continue the production of existing wells. It should be noted that much of the oil and gas employment in both cities is in offices of energy companies not just in the oil patch itself.

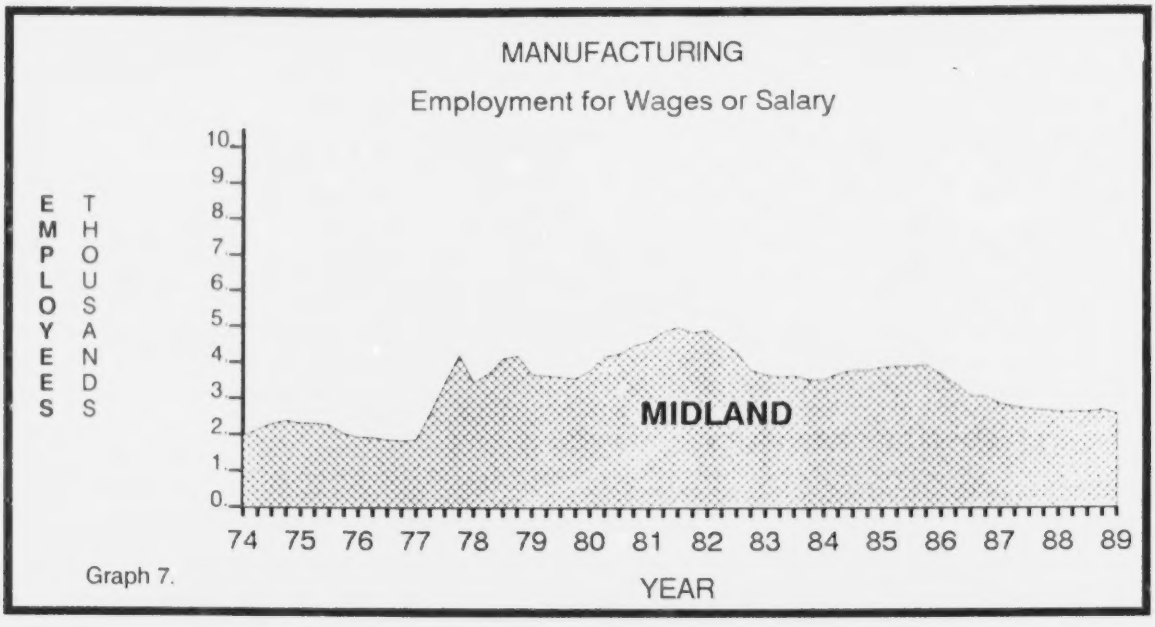
MANUFACTURING

Manufacturing in Midland and Odessa has historically been focused on equipment for the exploration for, and production of, oil and gas. Most equipment used in the petroleum industry is used in exploration for oil, in completion of successful wells, or the construction of the necessary pipelines, tank batteries, and separation equipment. This means that the demand for manufactured goods will be dominated by the fortunes of the exploration segment of the industry. As was discussed above, this is the most volatile segment of a highly variable industry.

The petrochemical and refining industry has also contributed significantly to the area's economy, especially that of Odessa.

Because manufacturing is dominated by oil and gas, manufacturing employment grew rapidly from 1974 to 1981. During this period, manufacturing employment in Midland grew at an average annual rate of 11.9 percent from 2,100 employees in 1974 to 4,800 in 1981. Odessa's manufacturing jobs grew from 5,100 to 9,400 at an annual rate of 6.2 percent over the same period.

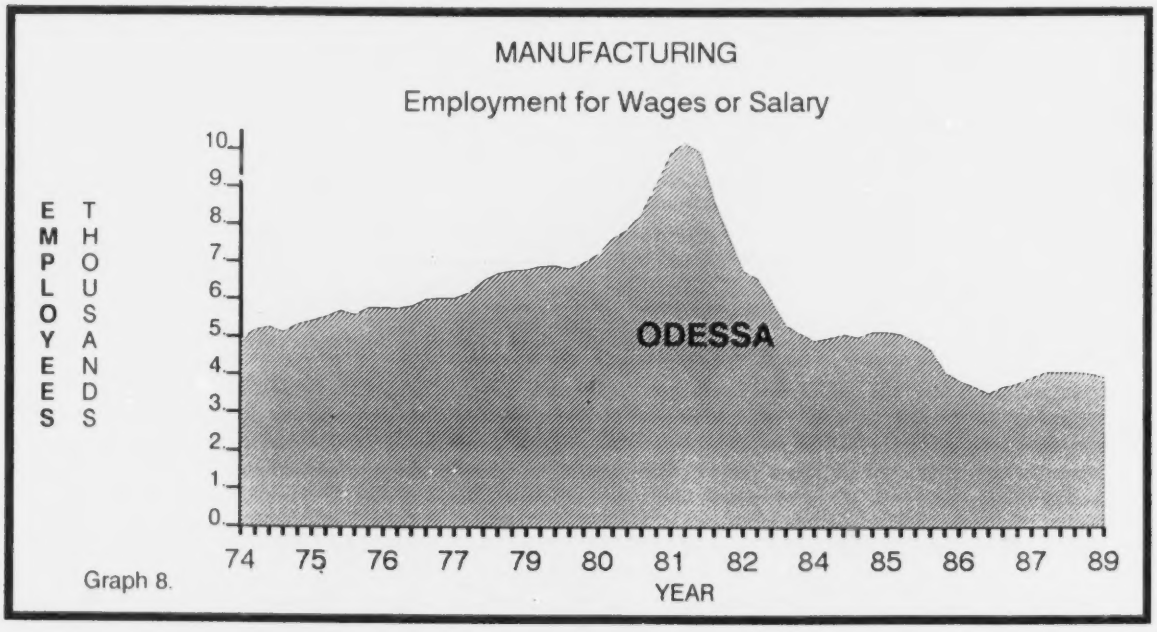
Crude oil prices peaked in the first quarter of 1981 before beginning their descent. The impact of the declining prices did not manifest itself until early 1982. Manufacturing and oil and gas employment were the first sectors of the Midland/Odessa economy to feel the impact of the price drop. Employment in manufacturing fell to 2,600 in Midland and 4,000 in Odessa. Employment in Midland and Odessa dropped at



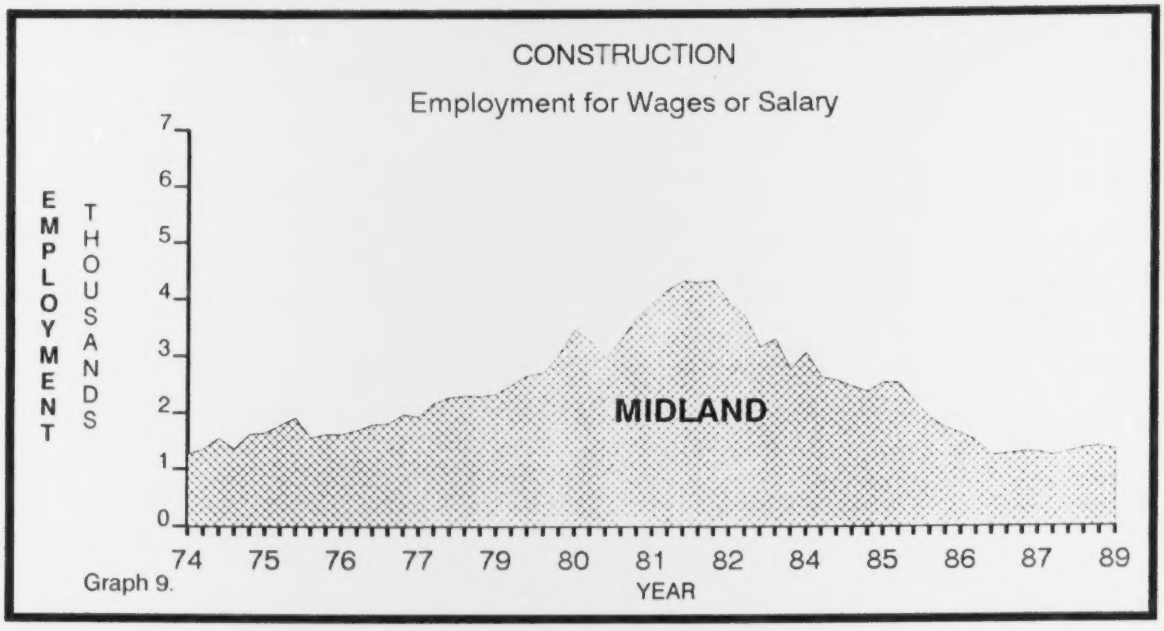
Graph 7.

average annual rates of 8.2 percent and 11.2 percent, respectively.

There is a major factor involved in understanding the difference in the rates of growth and decline in the two cities. Midland's manufacturing employment grew faster during the boom because in addition to the growth in oil related companies, Texas Instruments, located in Midland County, experienced considerable growth. Most of the business of Texas Instruments was unrelated to the energy industry and did not suffer the post 1982 decline experienced by other manufacturers which were, to a large extent, energy-related. In the absence of Texas Instruments, the rate of change in manufacturing employment would have been about the same in



Graph 8.



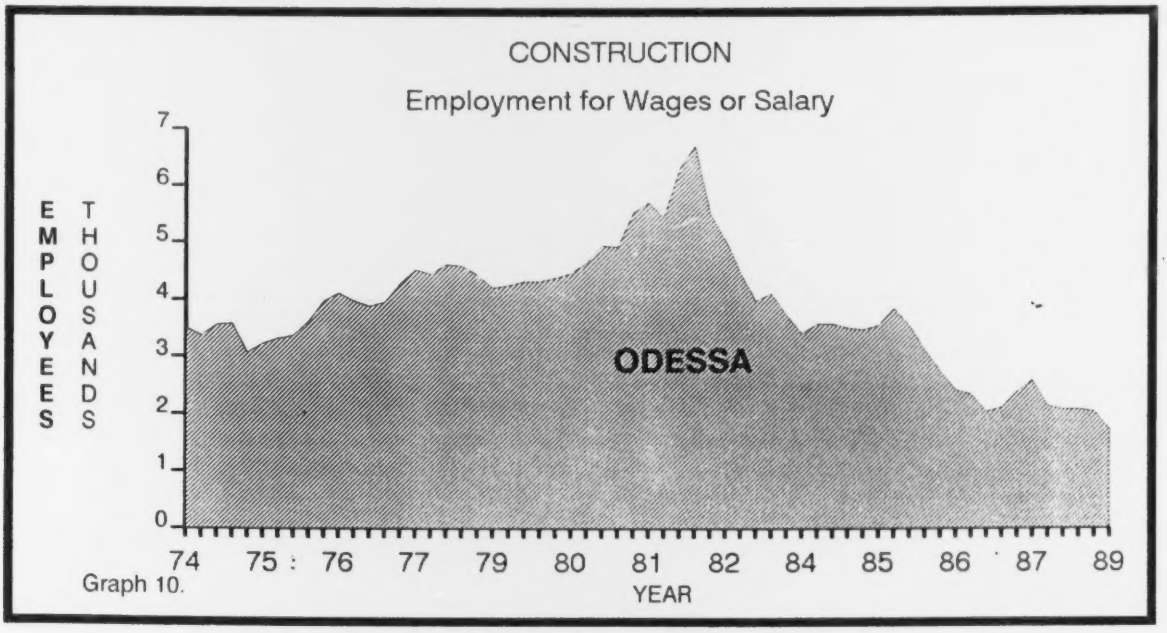
Graph 9.

both cities.

The difference in the behavior of manufacturing employment in the two cities is important in that it points to two major issues -- economic development and diversification -- which are of concern for the future of the Midland/Odessa economy. These issues will be examined in greater detail once the historical foundation is laid.

CONSTRUCTION

The rapid growth in the economy from 1974 to 1982 caused a boom in the local construction industry, which was hard put to satisfy the demand for housing, offices and commercial space. The rapid growth in the economic base of the area during the 1974-1982 period stressed the capacity of housing, offices and commercial space in both cities. To meet the rising demand,



Graph 10.

employment in construction soared from 1,400 in 1974 in Midland to an historic high of 4,200 in 1982. Odessa experienced similar growth, increasing from 3,500 construction jobs to 5,900 in eight short years. During that period, Midland and Odessa enjoyed average annual growth rates in construction jobs of 15.0 percent and 6.7 percent, respectively. The demand for new construction fell rapidly with crude prices. From the historic highs of 1982, the construction employment plummeted in both cities. By the first quarter of 1989, all of the post-1974 gains had been erased in Midland, with construction employment averaging 1,300. Odessa suffered even more, falling to 2,100. This was 1,400 jobs less than the 1974 level. From 1982 to 1988, construction employment declined at an average annual rate of 17.6 percent in Midland, and 15.9 percent in Odessa.

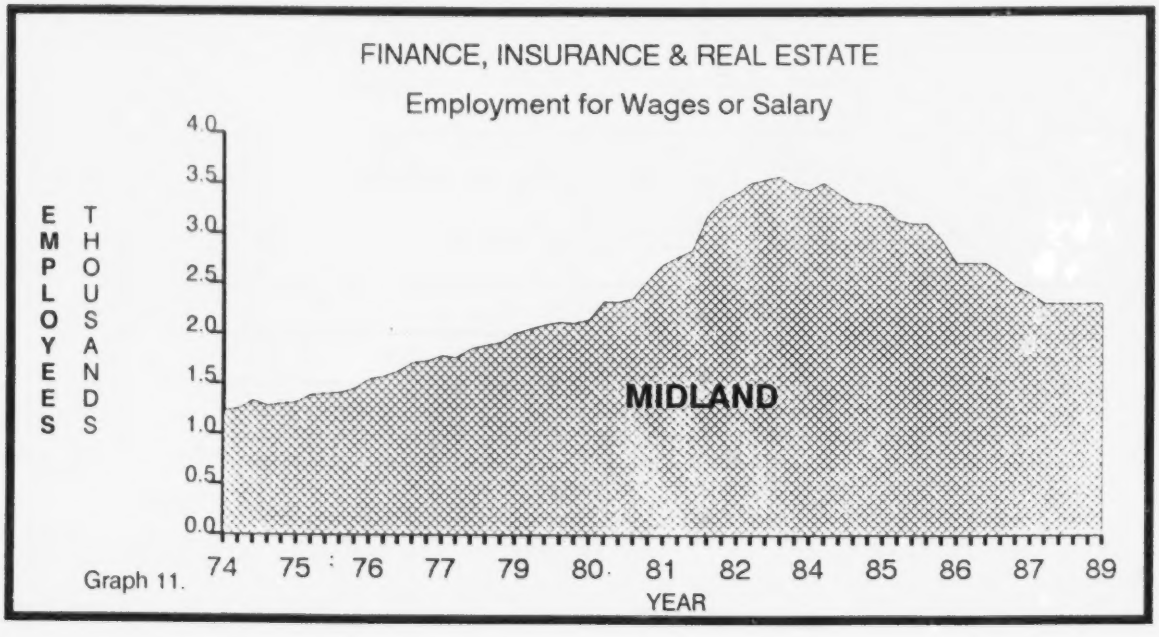
LOWER TAX RATES REDUCE INVESTMENT

Declining and uncertain oil prices are not the only causes of reduced interest in the oil industry. When Ronald Reagan entered office in 1980, the maximum personal income tax rate was 70 percent. By the time crude prices had passed their peak this rate had been diminished to 50 percent. This means that an investor in the oil and gas business was subject to greater exposure. An investor in the maximum tax bracket who put $100,000 into a drilling project was only exposed $30,000 in after tax dollars in 1979. By 1983, the same $100,000 resulted in an after tax investment of $50,000.

The Tax Reform Act of 1986 further reduced the rate in the highest bracket to 28 percent and eliminated the benefits of the investment tax credit. This same investor now had $72,000 at risk and was without the benefit of the investment tax credit. Although in theory, the taxes are just deferred, the time value of money makes this attractive to many investors.

The two successive tax reductions would have shifted some private money away from oil and gas even if oil prices had remained constant.

Many of the factors which influenced construction employment and real estate employment will be discussed in more detail, in the real estate section.



Graph 11.

FINANCE, INSURANCE AND REAL ESTATE

Finance, insurance and real estate employment in the Permian Basin is, as it is in most communities, tied to the health of the economic base. It is, however, one of the last sectors to reflect a change. In Midland, employment almost tripled, from 1,300 in 1974 to 3,500 in 1983. It is interesting to note that the peak year was two full years behind the peak in crude oil prices. Odessa's employment in this sector had its peak year in 1982. From 1974 to 1982, jobs in this segment doubled, growing from 1,200 to 2,400.

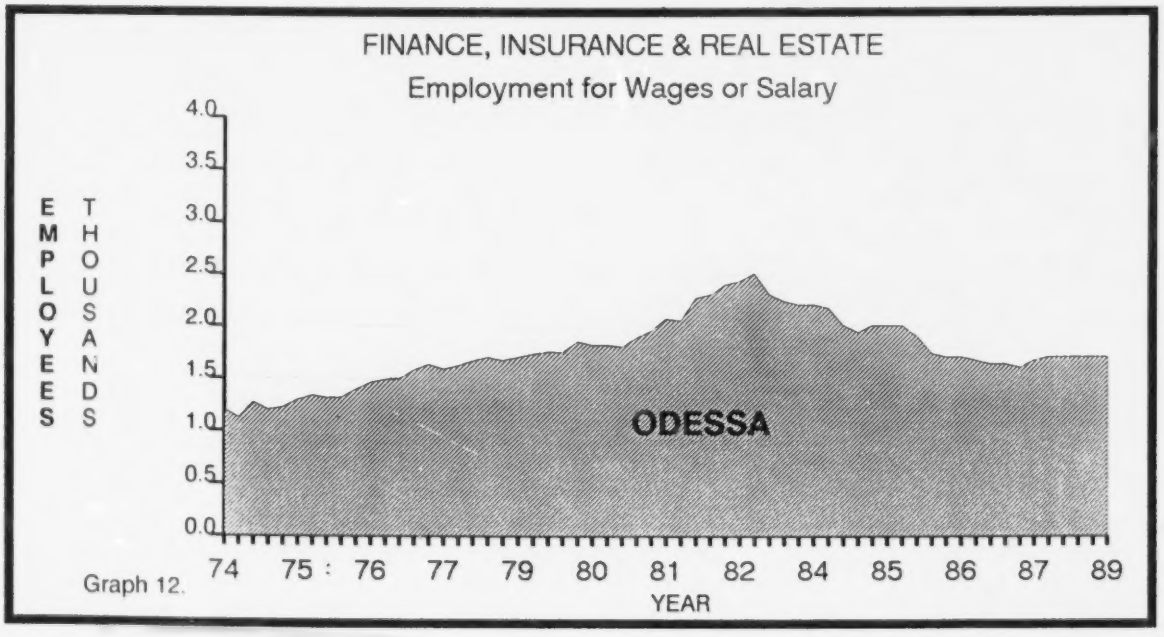
By now, even the most casual reader of the news is well aware of the problems experienced by these industries during the downturn. Savings and loans, which loaned heavily for real estate development, found themselves in possession of homes and commercial property as a result of historically high foreclosure rates. Many other properties financed by banks and savings and loans were secured by collateral which was under the protection of Federal Bankruptcy Courts. Chapter 11 proceedings often resulted in the suspension or reduction of principal and interest payments. This exacerbated an already difficult situation.

The large percentage of classified or non-performing loans and the rapidly declining value of repossessed real estate eroded the capital of many area banks and savings and loans. This culminated in the failure or restructuring of many area financial institutions.

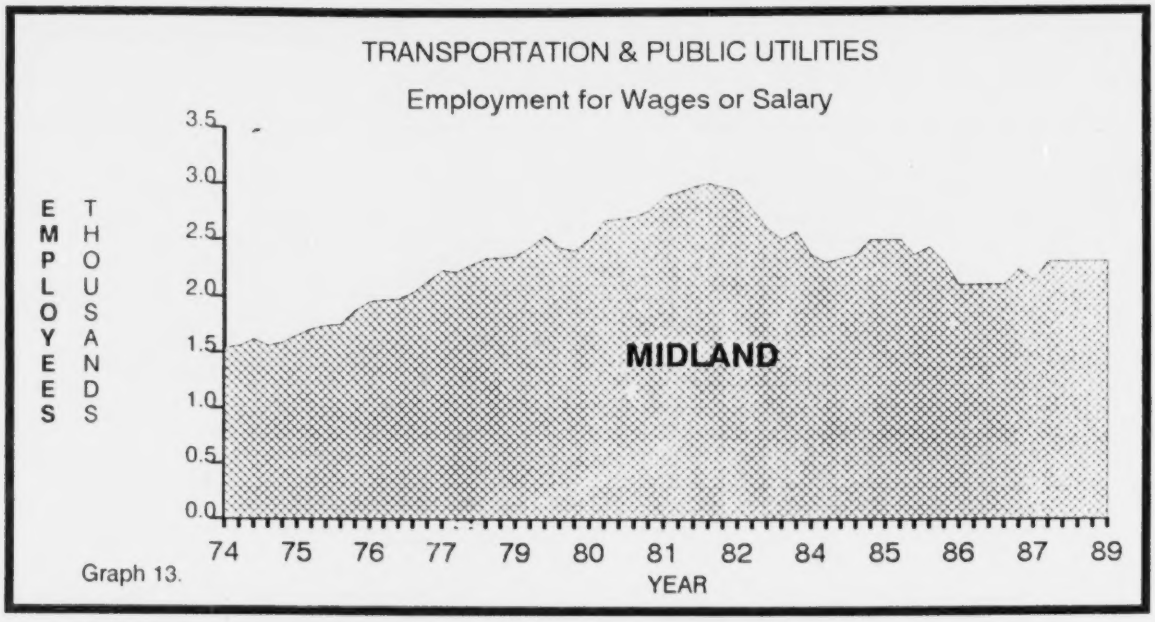
Under the influence of a declining economy and the scrutiny of regulatory authorities, lending policies became more conservative, further increasing the pressure on many Permian Basin businesses. Depositors also exhibited more cautious behavior by spreading their savings across several banks or savings and loans in order to come under the protection of the $100,000 insurance limit of the FDIC and FSLIC. Of course some benefit was gained from deposits coming into area banks for exactly the same reason.

The insurance industry suffered from declining population, lower business activity and rising workman's compensation claims.

The shrinking financial, insurance and real estate industries lost jobs at an average annual rate of 5.3 percent in Midland and Odessa over the 1982 - 1988 period. Although employment in these sectors did not suffer as much as other sectors the loss was significant -- over 1,200 jobs in Midland and 500 jobs in Odessa were lost.



Graph 12.

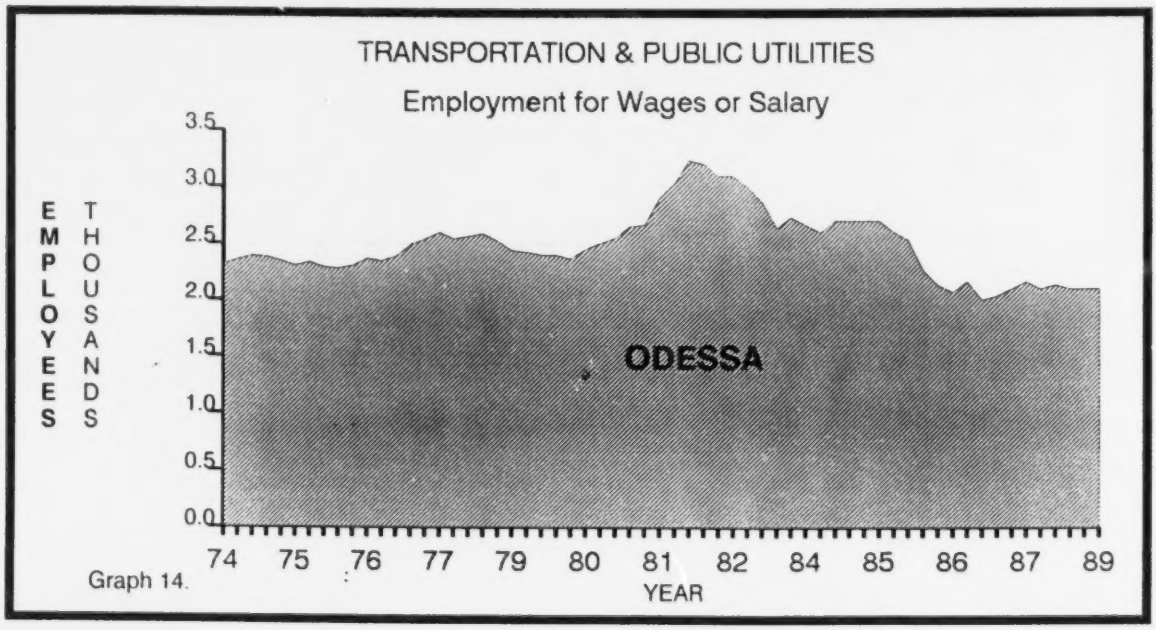


Graph 13.

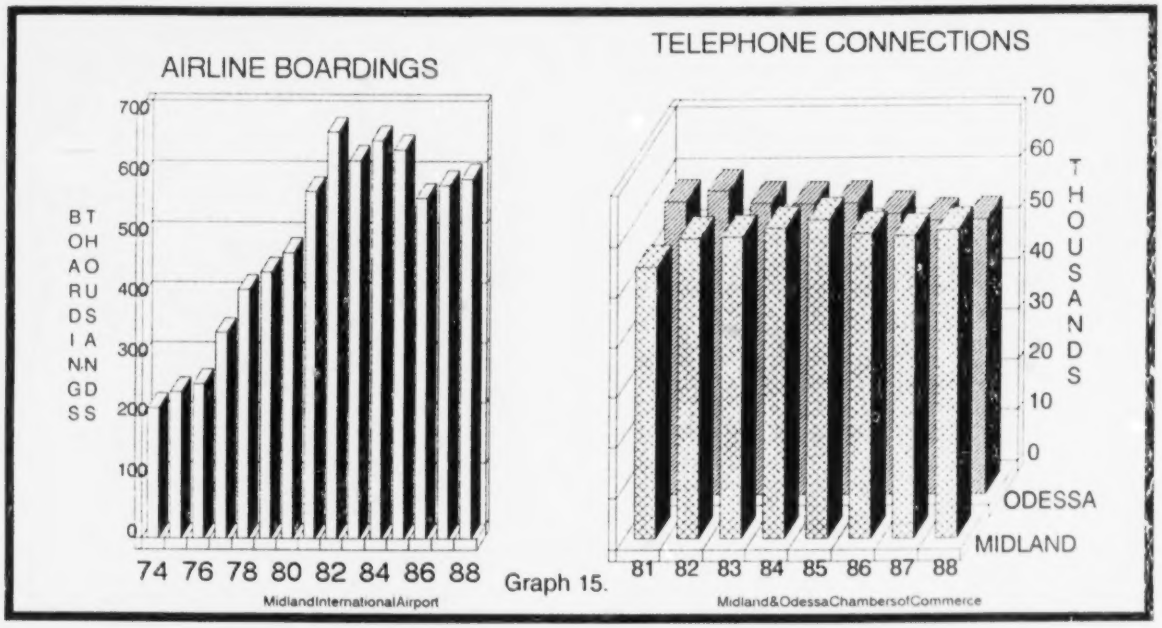
TRANSPORTATION AND PUBLIC UTILITIES

Jobs in transportation and public utilities are dependent upon the level of local economic activity. From 1974 to 1982, employment in this sector grew at an average annual rate of 8.3 percent in Midland and 3.7 percent in Odessa. In the post boom period from 1982 to 1988, employment in this segment declined at average annual rates of 2.8 percent and 4.0 percent in Midland and Odessa, respectively. Transportation is the most volatile part of this segment. The reason is that most items consumed in this region must be shipped in from outside the area.

A new long distance service ClayDesta Communications helped soften the slide in Midland. Although, as Graphs 15 and 16 demonstrate, utilities lost customers during the price decline, the number of connections lost was



Graph 14.

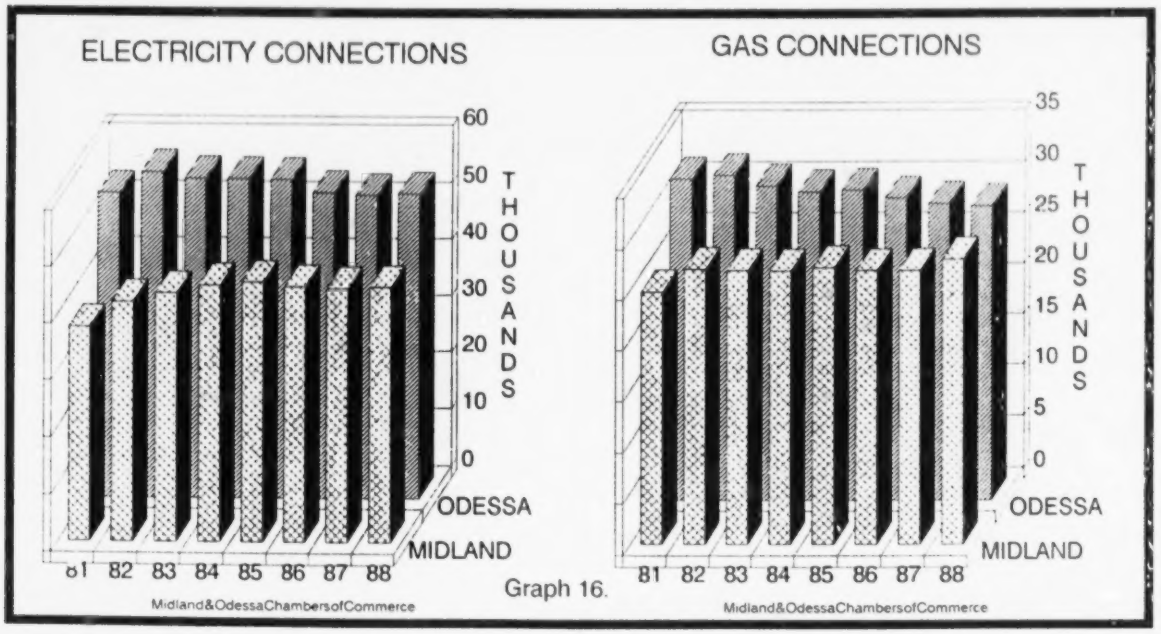


Graph 15.

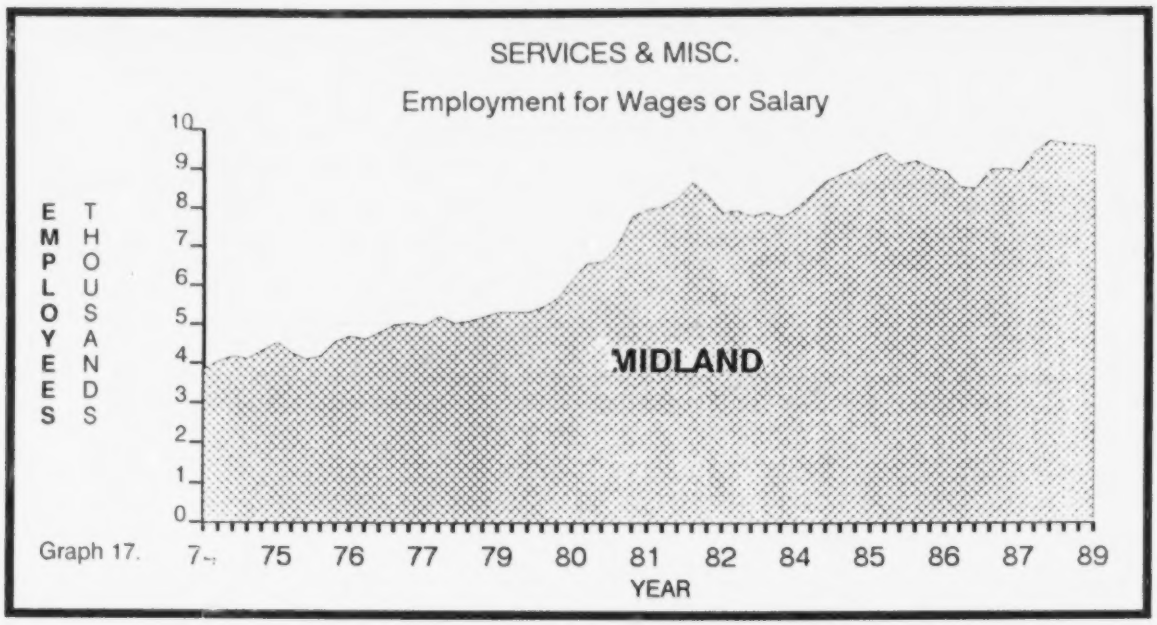
not as great as losses in other segments.

As an example of how this can happen, consider what happens to a house owned by a person who loses his job and is not able to find employment locally. Eventually this person is forced to sell his home. The value of the home may drop in the wake of a declining economy, but it's price will diminish to the point where it will sell. When it does, the new occupants will require the same basic utility services as the previous owners. This has the effect of softening any downward movement.

Over the 1974-1982 period, employment in this sector grew from 1,600 to 3,000 in Midland. From 1982 to 1988, Midland lost 700 of the 1,400 jobs it had gained during the previous eight years. In Odessa, jobs in transportation and utilities grew from 2,400 in 1974 to 3,200 in 1982. This was



Graph 16.

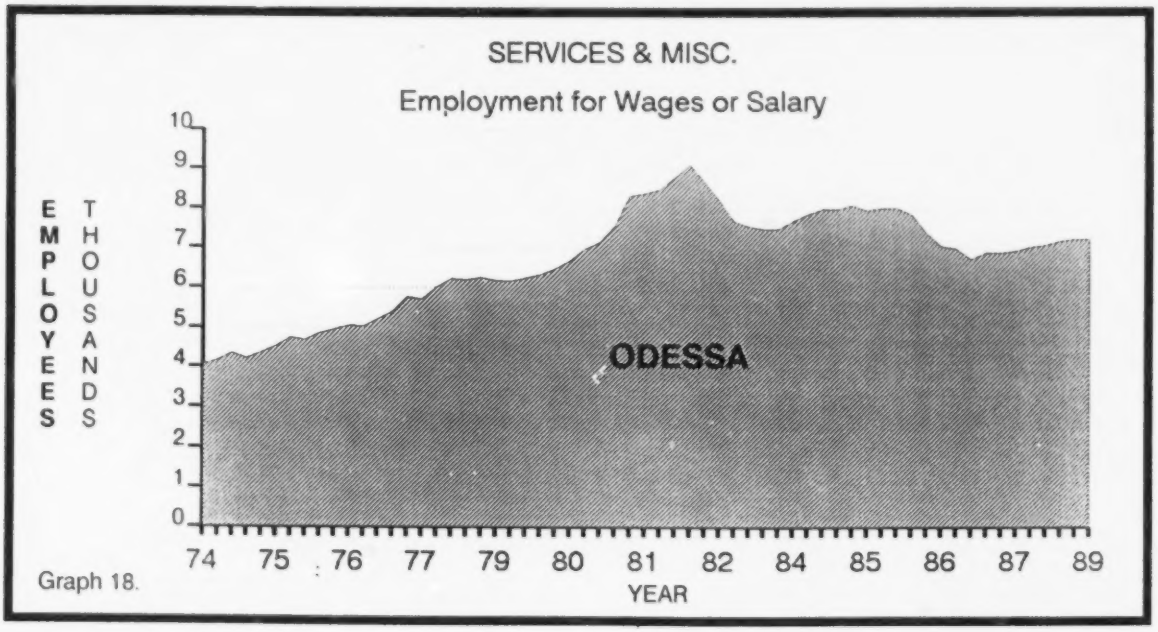

SERVICES & MISC.
Employment for Wages or Salary
EMPLOYEES THOUSANDS
MIDLAND
0 1 2 3 4 5 6 7 8 9 10
74 75 76 77 79 80 81 82 84 85 86 87 89
YEAR

Graph 17.

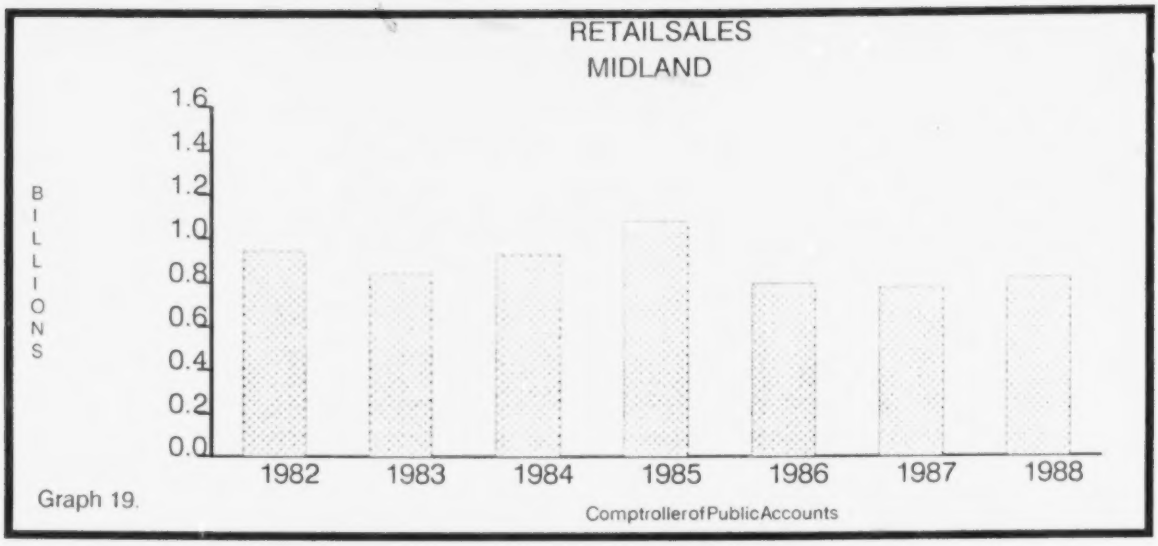
followed by the loss of 1,100 jobs. That's 300 more than gained in the previous eight years.

SERVICES

Among the private sectors of the Midland/Odessa economy, the service sector has exhibited the most strength over the past one and one-half decades. From 1974 to 1988 employment in services grew at an average annual rate of 6.4 percent in Midland and 3.9 percent in Odessa. These figures compare well with overall improvement in jobs of 4.1 percent and 1.0 percent in the two respective cities. Between 1982 and 1988, Midland gained jobs at an annual rate of 2.5 percent while Odessa lost jobs at the rate of 3.3 percent per year.


SERVICES & MISC.
Employment for Wages or Salary
EMPLOYEES THOUSANDS
ODESSA
0 1 2 3 4 5 6 7 8 9 10
74 75 76 77 79 80 81 82 84 85 86 87 89
YEAR

Graph 18.



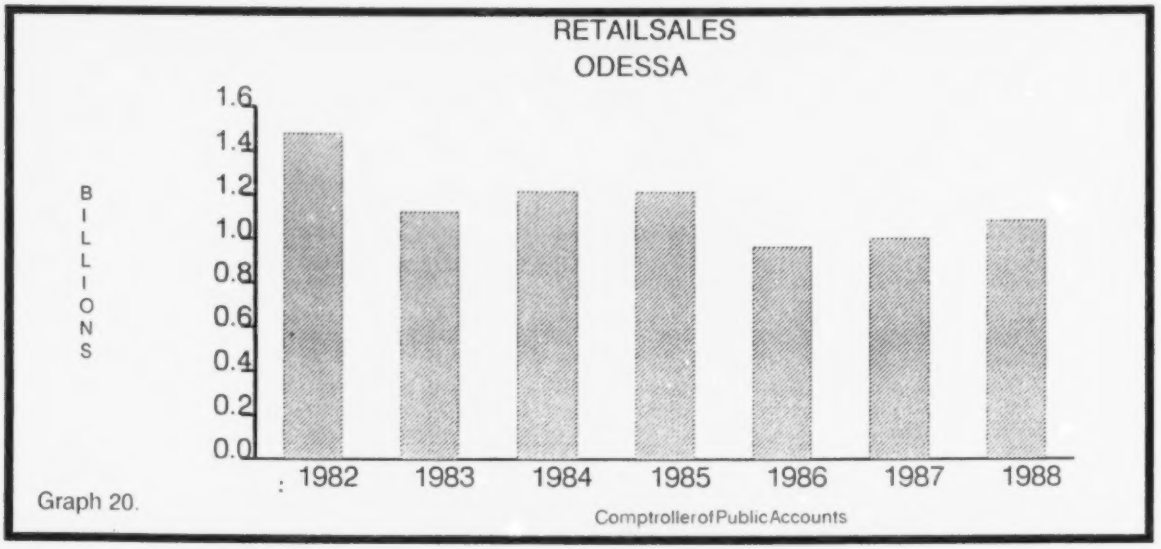
Graph 19.

In Midland, service employment grew from 4,000 in 1974 to 8,300 in 1982. After a slight dip in 1983, this segment continued to grow to 9,600 in 1988. Odessa in contrast, grew from 4,000 in 1974 to 8,700 in 1982. From that point, it receded to its current level of 7,100 with most of the loss occurring from 1982 to 1983.

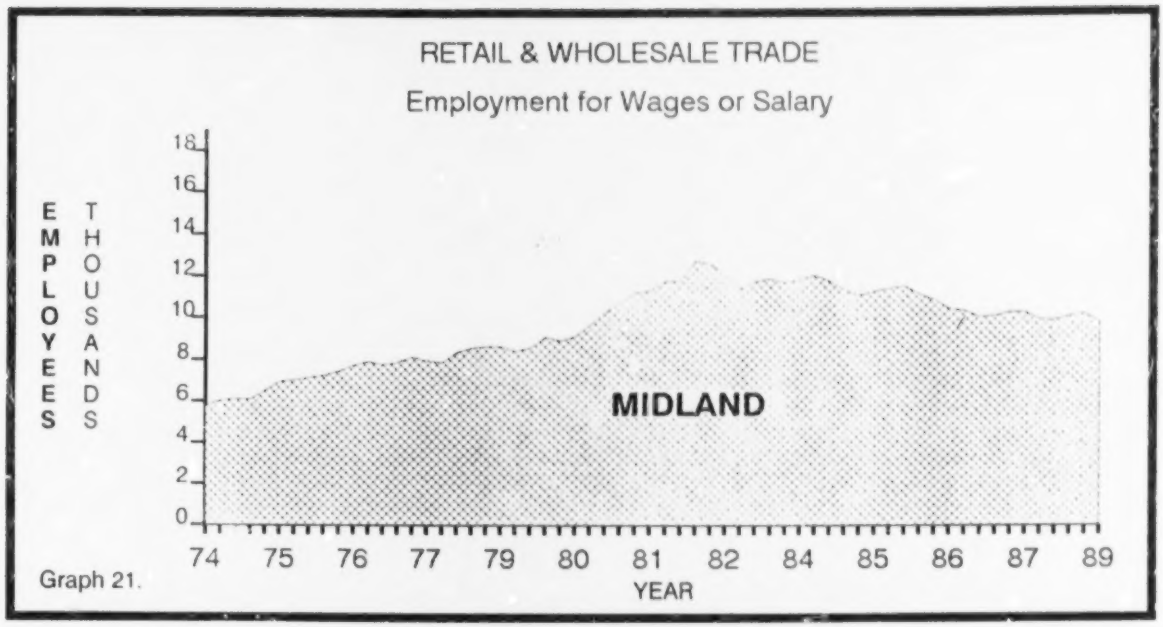
A large part of the growth services in Midland can be attributed to people who transferred from one sector to another. An example would be a petroleum engineer who, no longer working for a major oil company, is now working for a consulting firm. Although he may be doing exactly the same type of work that he did for the oil company, when he worked for an oil company his job was classified in mining (oil and gas) now his job counts as employment in services. Another reason for the movement toward services is that it is often less expensive for a company to hire occasional services from a company which specializes in a particular service than it is to maintain an internal staff to do the same job.

RETAIL AND WHOLESALE TRADE

Trade employment is nearly totally dependent upon the level of activity in the local economy. Trade employment in Midland rose from 6,000 in 1974 to a peak of 12,300 in 1982. Following the



Graph 20.

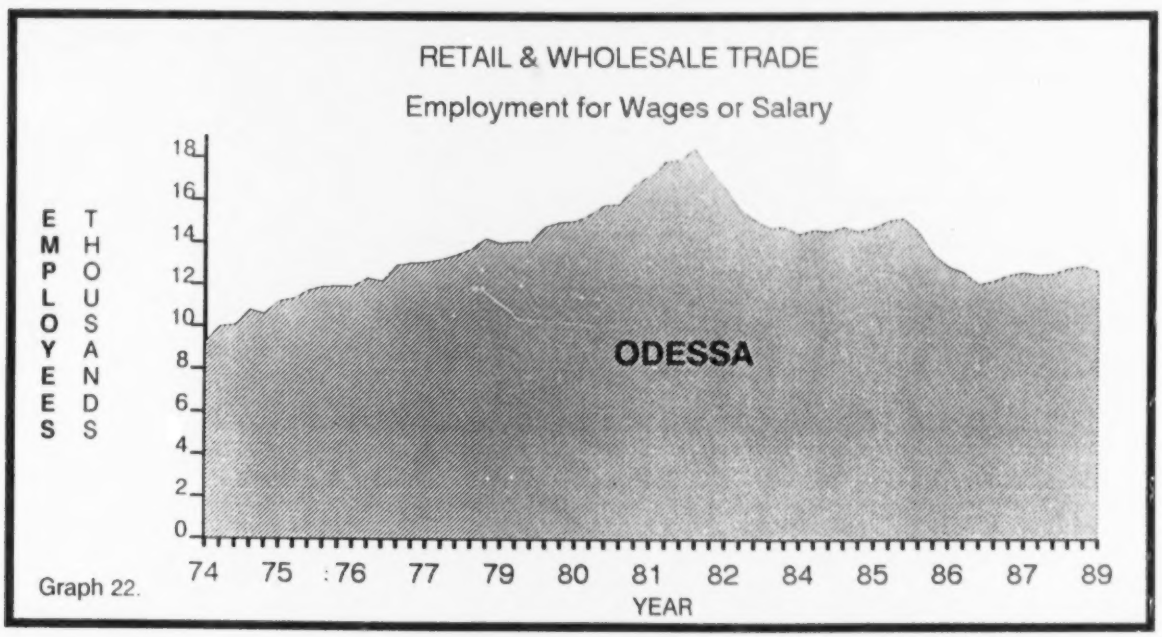


Graph 21.

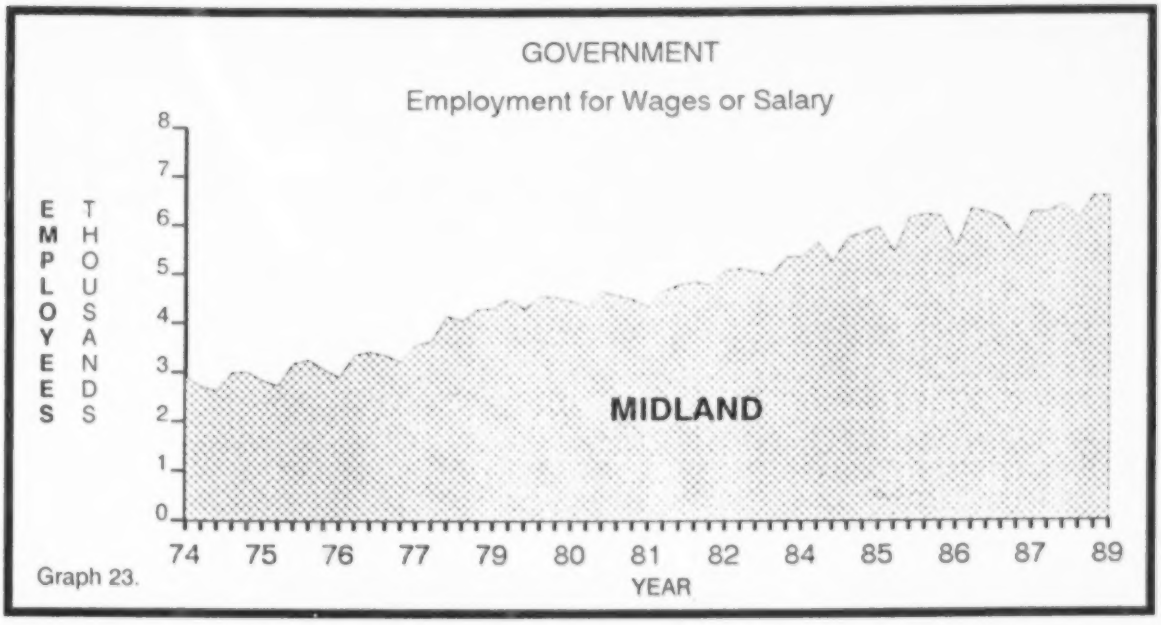
downward trend in crude oil prices, employment in this sector declined at an average annual rate of 3.4 percent compared with a growth rate during the 1974-1982 period of 9.4 percent. From 1974 to 1982, employment in retail and wholesale trade in Odessa grew from 10,000 to 17,600 at an average annual rate of 7.3 percent. During the post 1982 decline, this sector lost jobs in Odessa at a rate of 4.0 percent per year falling to 12,700 jobs in 1988.

GOVERNMENT

As is often the case, government employment continued to grow throughout boom and bust.



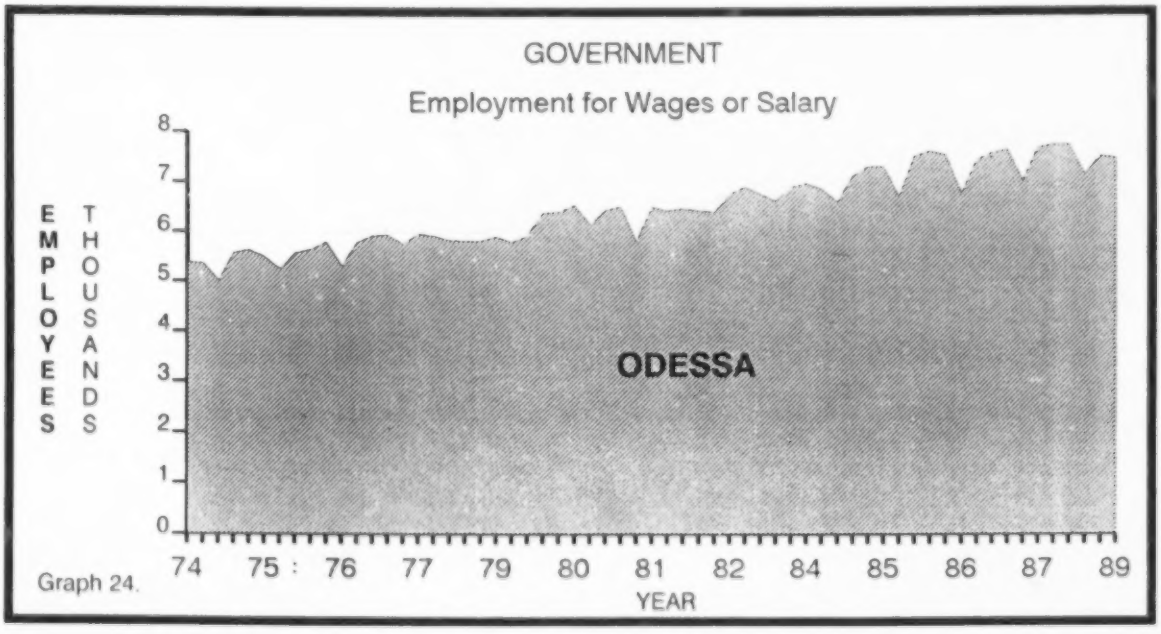
Graph 22.



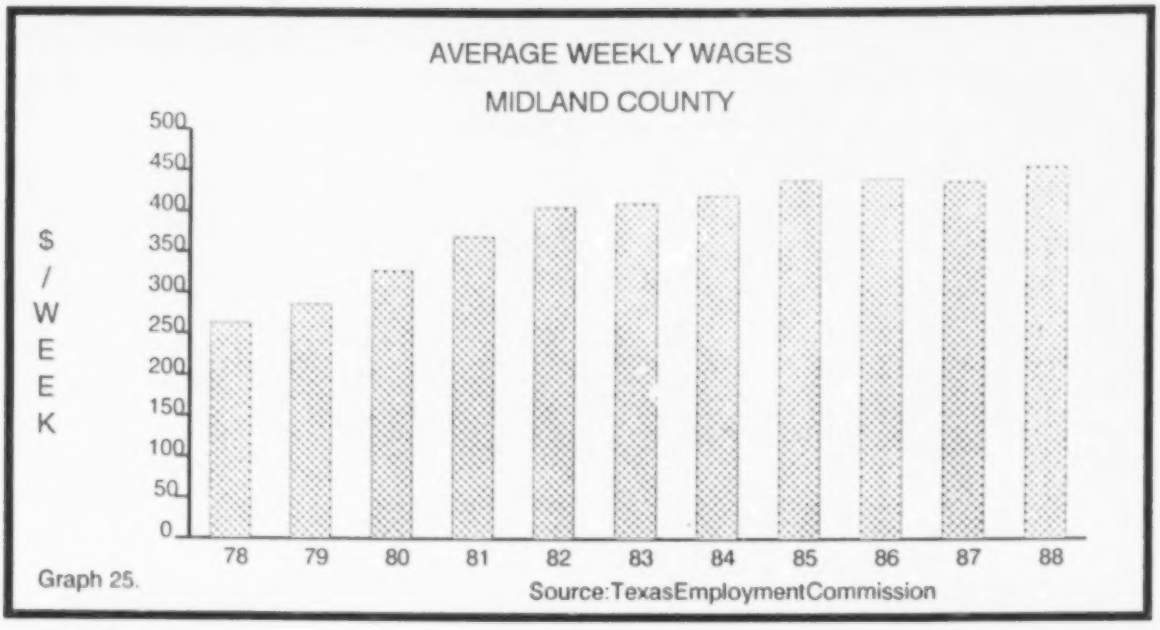
Graph 23.

Government employment increased in Midland at an average annual rate of 6.0 percent over the 1974-1988 period. Odessa's growth during the same period was a more modest 2.5 percent per year.

Midland and Odessa government employment grew at annual rates of 4.5 percent and 2.4 percent, respectively, in the post boom era. This growth is to be expected in a community which experienced a sudden overall decline. A weak economy increased the need for many of the social services provided by government, leading to increases in government employment.



Graph 24.



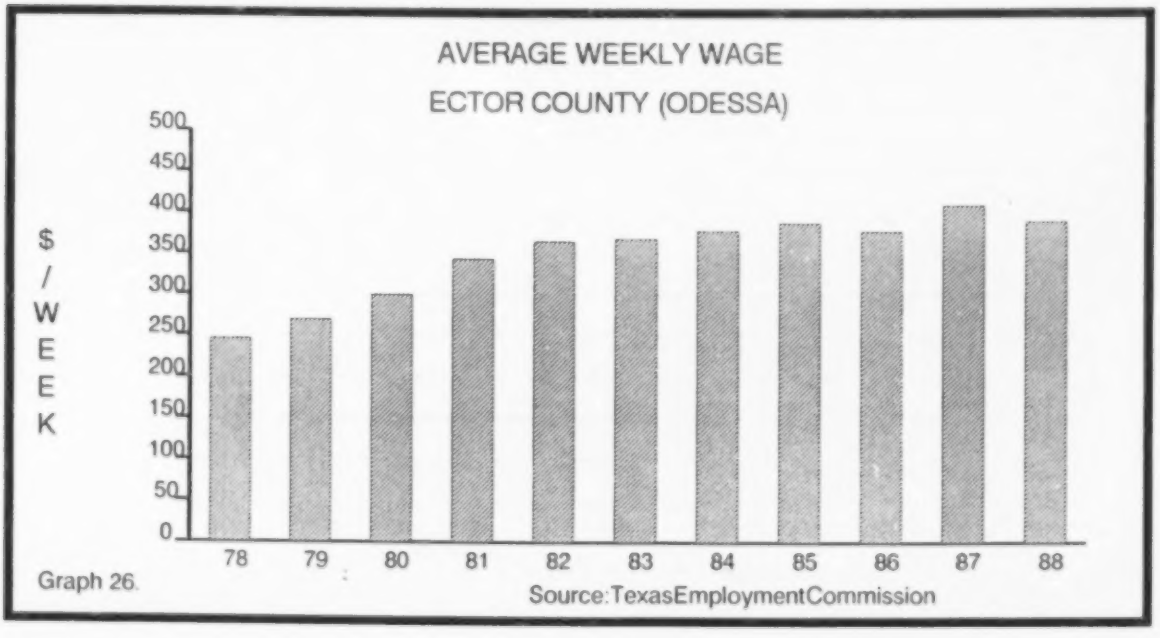
Graph 25.

Source: Texas Employment Commission

WAGES AND SALARIES

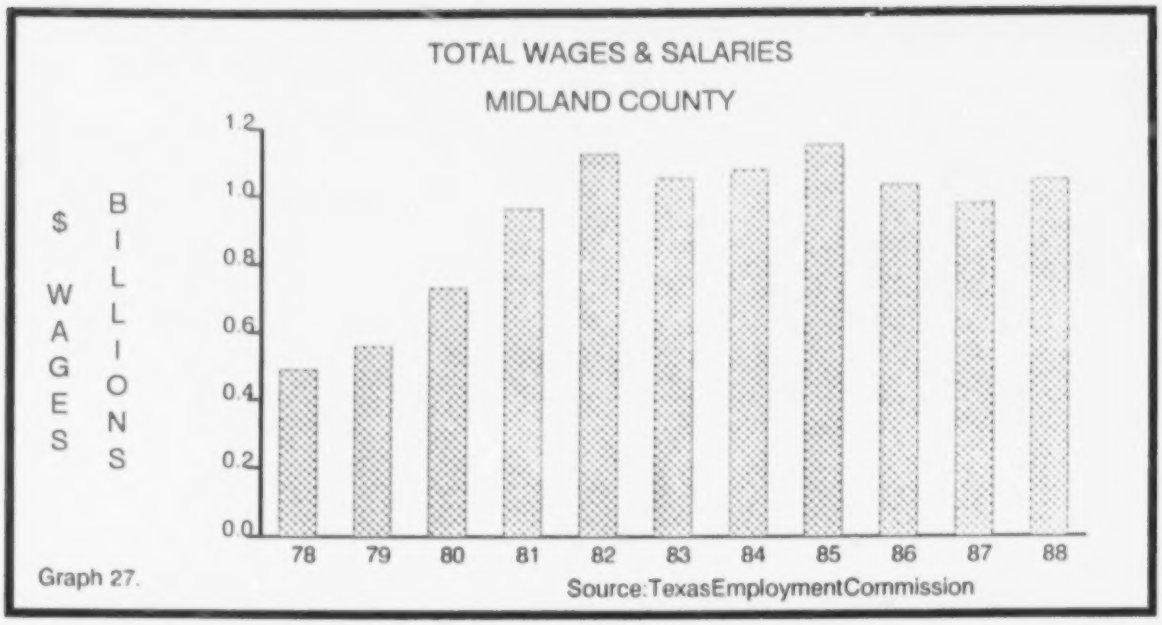
The history of wages and salaries adds additional insight into the inner workings of the Midland/Odessa economy. From 1978 to 1982, average weekly wages grew at over 10 percent per year in the two cities. Midland showed annual increases of 11.4 percent while Odessa's average wage grew at 10.4 percent. During the post-1982 period, Midland and Odessa's average weekly wage increased at average annual rates of 1.8 percent and 1.1 percent, respectively. This compares with annual increases of 3.2 percent for the nation as a whole.

The lower than average wage increase is easily explained in terms of the decline in employment and large numbers of unemployed seeking the remaining jobs.



Graph 26.

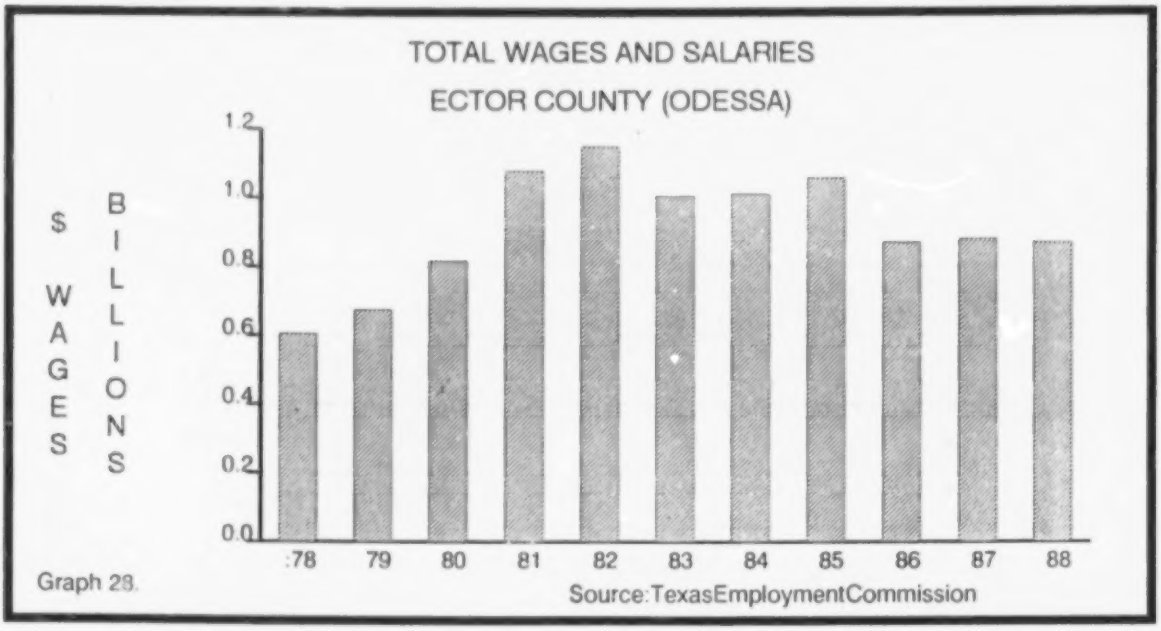
Source: Texas Employment Commission



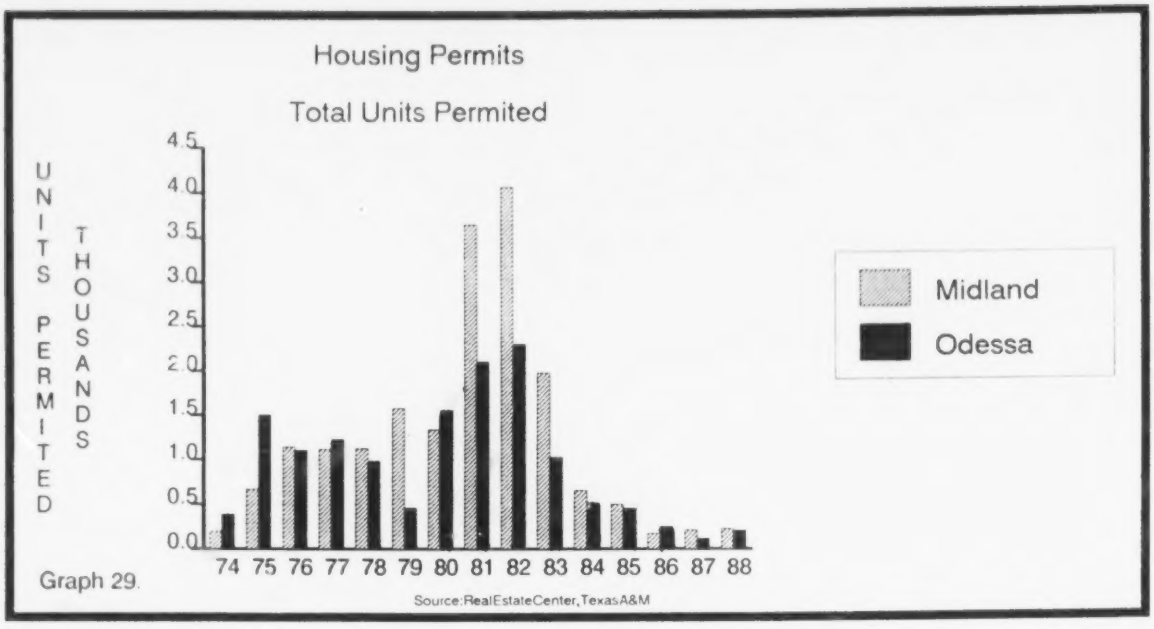
Graph 27.

A slower than average gain in weekly wages would have been sufficient to put pressure on retail sales. However, when the drop in the number of employed workers was added to a slower than average growth rate in wages, the impact was much more drastic. Total wages and salaries paid during the 1978-1982 period had grown at average annual rates of 23.2 percent and 17.5 percent in Midland and Odessa, respectively. From 1982 on, total wages declined at a rate of 1.2 percent and 4.6 percent in the respective cities.

The impact of a declining labor force and of diminished wages had a significant influence on retailers and delivered a devastating blow to the housing market.



Graph 28.

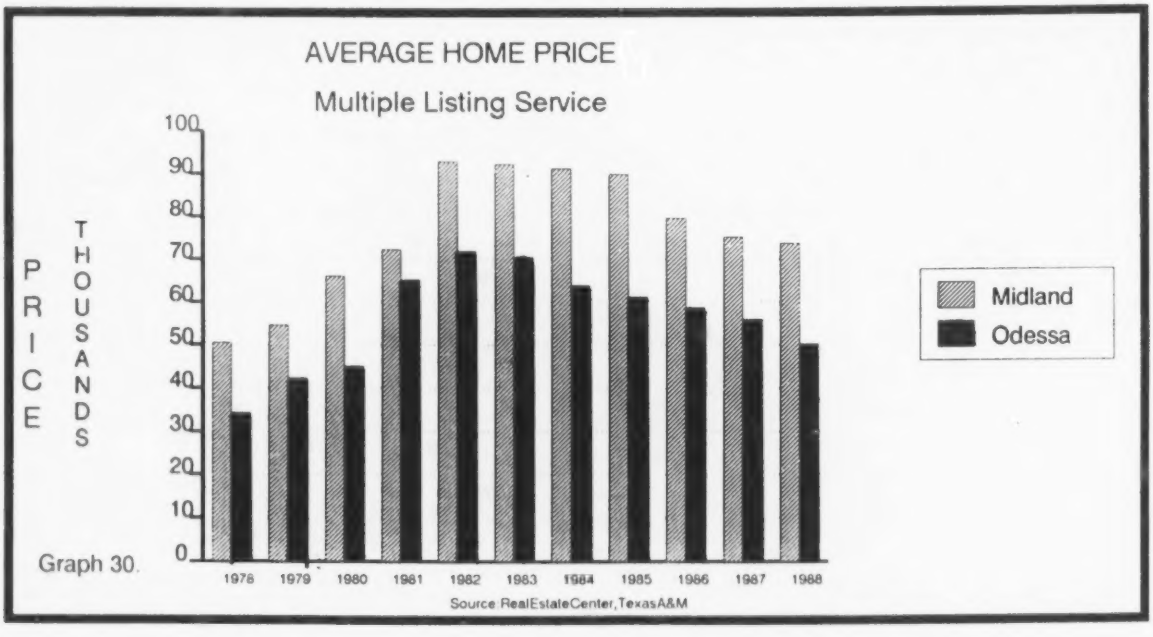


Graph 29.

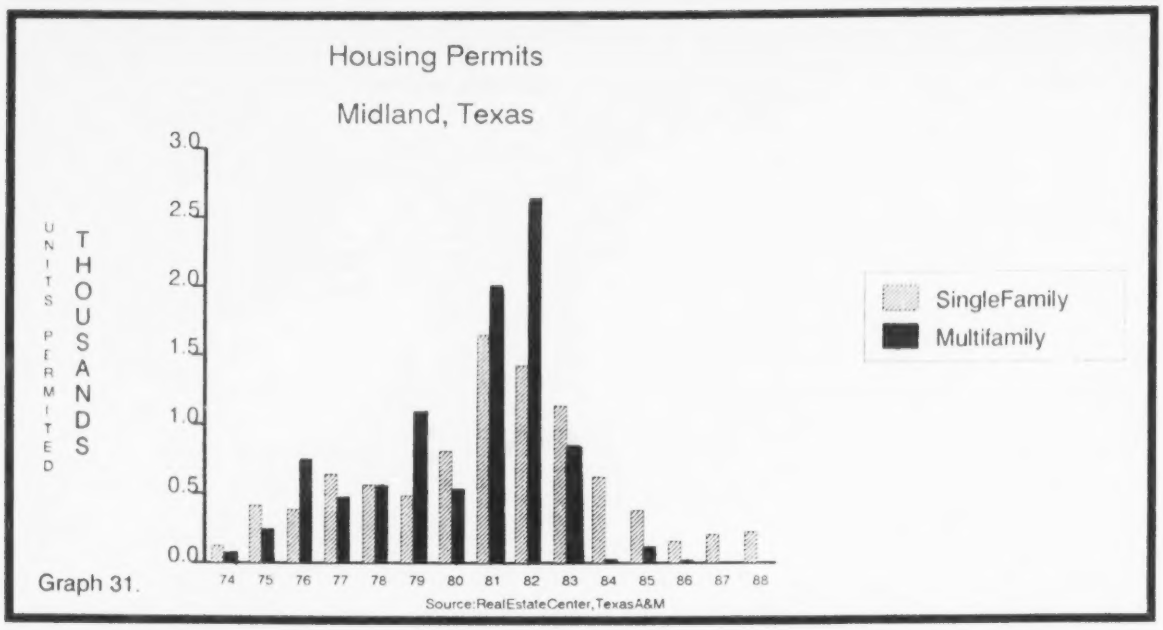
HOUSING AND REAL ESTATE

The rapid increase in employment from 1974 to 1982 lead to an increase in population and a rapid acceleration in the demand for housing. While the rest of the country was suffering from a recession in the early 1980's, the Midland/Odessa area was growing so fast that many people moving to the area had to live in campers and tents. The extreme housing shortage ushered in a tremendous boom in construction of homes and commercial property.

In 1974, the total number of homes and multifamily dwellings permitted was 193 in Midland and 385 in Odessa. By 1982, the number of homes and apartments permitted had grown to 4,066 in Midland and 2,309 in Odessa. Although construction declined 50 percent in 1983, it still continued at a rapid pace well into 1984.



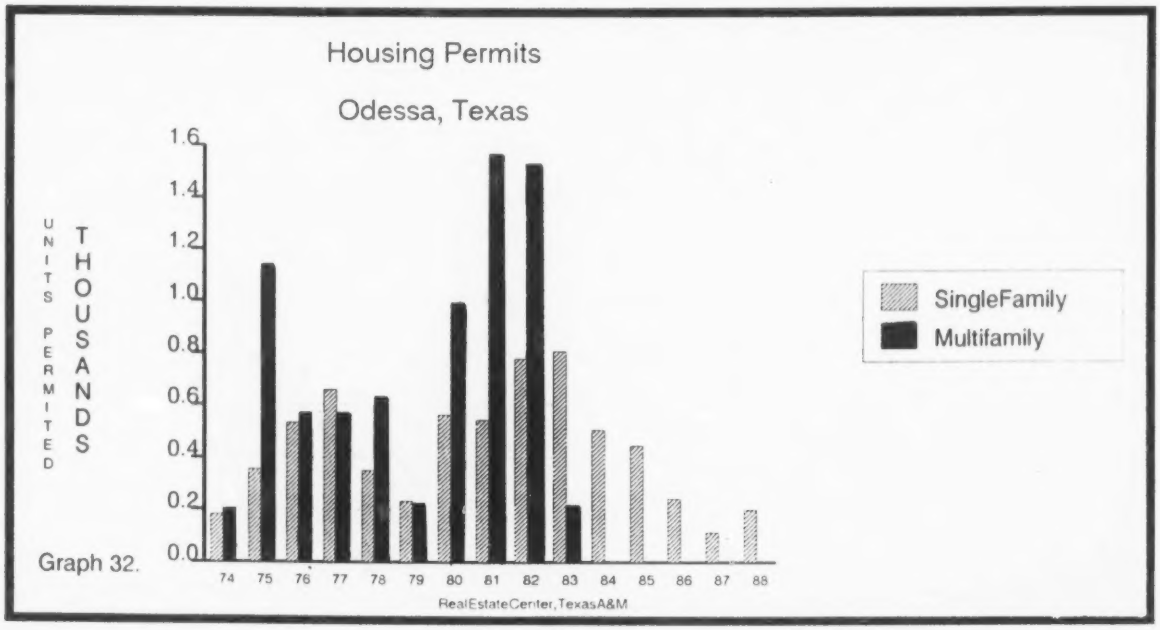
Graph 30.



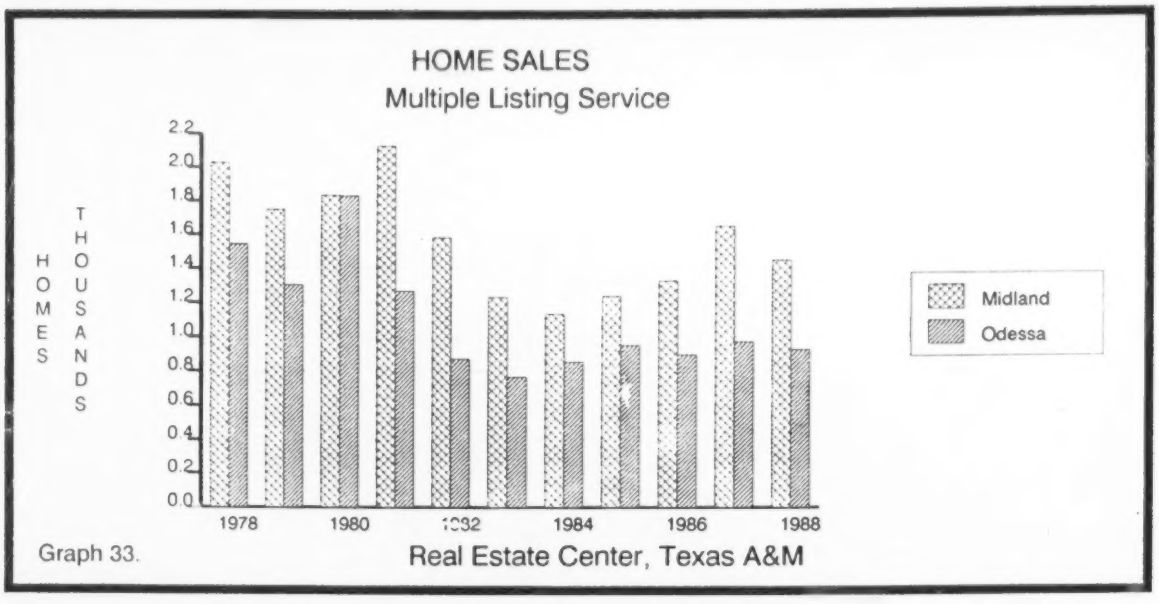
Graph 31.

Unlike most other products, housing, with the exception of mobile homes and prefabricated housing, must be constructed locally. The process of obtaining land, financing and permits, coupled with the time necessary to build and a labor shortage, caused the construction boom to continue well into the period of declining employment and population.

The over-built market, additional homes put on the market due to foreclosures and people moving out of the market area caused a rapid drop in home values. In 1978, the average home sold for about $50,000 in Midland and $34,000 in Odessa. By 1982, prices had almost doubled to $92,000 and $72,000 in the respective cities. In Odessa, where the level of economic activity responds faster to changes in oil and gas prices, the average price of a home dropped 10 percent in 1984. It was 1986 before the impact appeared in Midland home prices. By 1988, prices had



Graph 32.

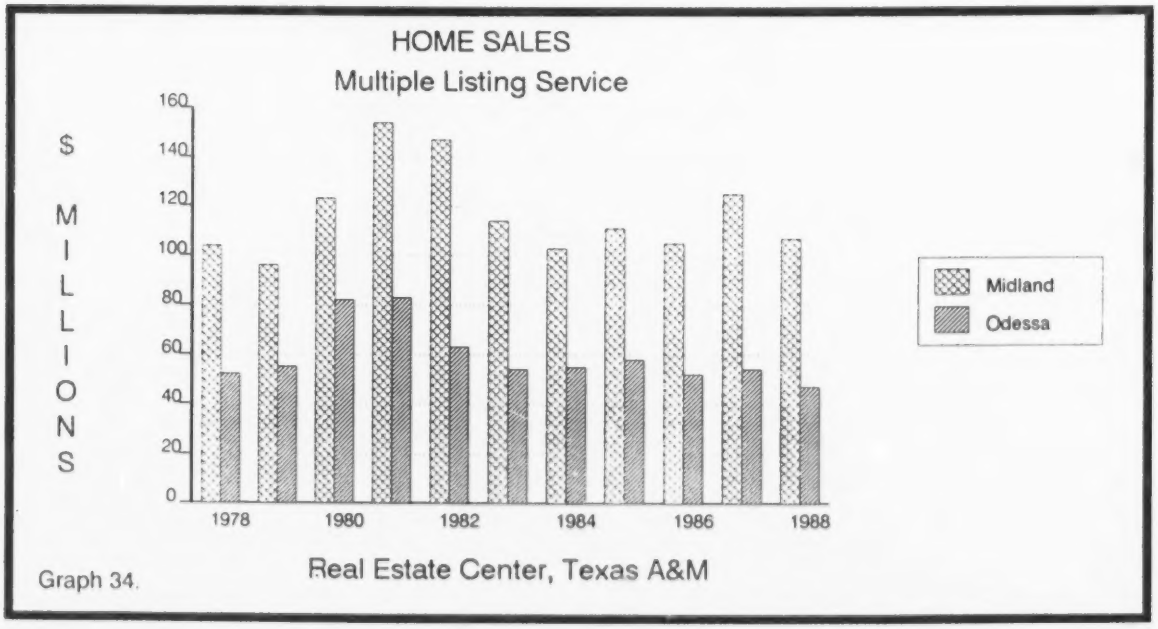


Graph 33.

declined 20 percent in Midland and 28 percent in Odessa from the 1983 peak.

Apartment complexes suffered even more from over-building and the declining market for housing. Occupancy rates fell, and with them rental rates, to a level well below that necessary to service the debt on the properties. Many complexes were forced into bankruptcy with a large percentage of the properties now in the hands of lenders.

Like most coins, this one has two sides. The decline in the value of homes and in apartment rental rates has produced very favorable housing costs compared to most places in the United States. This low cost of housing is an integral component for the process of economic development and diversification of the area economy.



Graph 34.

STRATEGIES FOR THE FUTURE

Even a cursory examination of the Midland/Odessa economy arrives at the conclusion that the area's economy is dominated by the oil and gas industry.

Oil is a commodity, the price of which is determined in international markets. OPEC, the Organization of Petroleum Exporting Countries, has the potential to control prices, but has repeatedly demonstrated that it lacks the discipline to do so over a sustained period of time. This attempt at control and lack of resolve adds to the potential for large swings in oil prices. The history of oil prices over the last 130 years has amply demonstrated the instability of the oil market. Changing tax policies and government regulation of prices distorted markets, and added, at times, more volatility to the industry. In the absence of price regulation of domestic crude, petroleum prices would have followed a more moderate path during the last two decades.

The instability spills over into the local economies of regions with significant oil and gas reserves. The Permian Basin has one of the highest concentrations of oil and gas and related businesses in the nation and as a consequence its economy is severely affected by the extremes of energy prices. How to dampen the impact of these fluctuations is the major challenge for the area's economy. Although space does not permit a complete answer to all of the questions facing Midland and Odessa some of the major points can be addressed.

Mapping the future for Midland and Odessa involves four steps:

(1) Identify economic and social goals for the region.

(2) Determine available human and physical resources.

(3) Analyze the goals in light of available resources and plan a course for the future to achieve those goals and objectives subject to the available resources.

(4) Implement the plan to best achieve those goals in a cost effective manner.

ECONOMIC AND SOCIAL GOALS

It is impossible to set economic goals for a community without viewing those goals in the broader context of the type of community or environment in which we desire to live. In a depressed economy, the first thing which comes to mind is the desire for expansion and growth in employment. While economic growth is an admirable goal, it often is a two-edged sword. From the mid-1970's to 1982, Midland and Odessa were consistently ranked among the fastest growing metropolitan areas in the country. That growth strained the ability of both communities to provide schools, housing and many of the basic services that are generally expected. It was difficult to absorb the great influx of people moving in to the area. In 1981, every hotel and motel was completely booked. People unable to find housing were living in campers, tents, trailers and motels. It was not uncommon to apply to lease an apartment before construction was finished. Rental rates and housing prices skyrocketed. Qualified employees were difficult to find at almost any price.

In the post-1982 era, there were problems of high unemployment and a housing market with plunging prices and high foreclosure rates. Apartment complexes, office buildings and commercial property suffered from low occupancy rates and plummeting lease rates. Many are currently in the hands of lenders. Drilling rigs were idled as the industry eventually experienced the lowest level of drilling activity in the forty years since World War II.

The social stress of a boom and bust economy is significant and it is generally desirable to avoid both extremes. Midland and Odessa should seek an environment of economic growth and development along a path which is insulated as much as possible from severe swings in economic activity. Fortunately, the downturn has enhanced the ability of the two communities to achieve those objectives.

RESOURCES

The aftermath of the bust has produced, in addition to the other assets of the region, major resources for the future. The glut of housing, office space, commercial and industrial properties, at prices well below those in most other cities, makes the area very attractive for business development or relocation. A combination of high unemployment rates and a greater than average education level creates an enticing environment for business formation or relocation.

The region's climate is comparable to Phoenix. This fact, combined with a large number of attractive golf courses and the existing medical facilities, opens the long term potential for developing a significant retirement industry. The Midland/Odessa Health and Retirement Endeavor is currently addressing this market.

The transportation system has advantages and disadvantages. Air transportation is excellent for a community the size of Midland and Odessa. However, for some companies whose products are shipped by truck or rail, the distance to most markets puts the area at a competitive disadvantage because of transportation costs. For some companies this is not a major factor. Those companies will be profiled in the analysis and planning section.

Since oil and gas are the primary physical resources of the Permian Basin it must be recognized that for the foreseeable future a significant portion of the economy will be dependent upon oil and gas related activity. The next problem is to chart a course of action which will result in the effective utilization of the area's resources to achieve the goal of stable economic growth and development.

ANALYSIS AND PLAN

It is beyond the scope of this study to present a complete analysis or plan. It is, nevertheless, possible to address some of the major elements necessary to our goals.

Economic growth and stability does not necessarily mean complete diversification. Complete diversification would result a community which had the same percentage of retailers as the total country, it would have the same percentage in the automobile industry, and likewise for all businesses.

Because of the natural advantage in oil and gas of this area over most others, Midland and Odessa will always have a higher than average representation in these segments than the rest of the country. To achieve stability, the area must add firms to its economic base which are counter-cyclical to the energy industry. The products we are looking for are those which use a significant amount of energy in their production or use petroleum or natural gas as building blocks for their product. The companies which make these goods will face lower costs when energy prices are low and higher costs with increased energy prices. This means that, other things being equal, they will prosper with low oil prices and suffer with higher prices. Employment swings in an industry with these characteristics would be opposite of oil and gas, adding stability to local employment.

The petrochemical industry has many of the characteristics for which we are looking. It is counter cyclical to the oil industry. It requires natural gas liquids as feed stock and natural gas for steam production. One draw back is transportation cost, because of the distance to markets. Notwithstanding, the petrochemical industry accounts for 1,100 employees or a little over 2.5 percent of Odessa's labor force. Specialty petrochemicals which generally have a higher margin between feed stock cost and product price may present even better possibilities than the more basic petrochemicals since transportation charges would be a smaller percentage of final price.

This example leads to an additional characteristic to look for in industries compatible with the goals and resources of Midland and Odessa. High value added industries are often desirable, but must be analyzed individually in terms of its contribution to to objectives of stability and growth.

Although companies which exhibit characteristics counter-cyclical to the oil and gas industry are desirable, the addition of any business whose fluctuation in activity is less than that of the oil and gas industry and related manufacturing will reduce volatility in the Midland/Odessa economy.

For many operations, transportation cost is not an issue. The best examples being credit card processing, catalog order processing and other services which are performed primarily by phone and mail. A business of this type would also benefit from the favorable lease rates for office space.

Companies in industries which have higher than average potential for growth are obviously desirable. Since most of the growth in the U.S. economy comes from small business, Midland and Odessa might do well to consider targeting smaller companies for relocation to the area. There are several advantages to targeting small to medium size businesses. Smaller businesses tend to be more closely held and controlled and, therefore, are often able to reach relocation

decisions in a shorter period of time. Since most communities tend to want to recruit large operations to their community, Midland and Odessa might expect to find less competition if they were to target smaller companies for expansion or relocation.

It is also important that the community offer an environment which encourages development of existing business and the expansion of their markets. Organizations such as the Business and Economic Development Center at Midland College, the Small Business Development Center and the Center for Energy and Economic Development at U.T. Permian Basin and the Permian Basin Bid Center are currently offering assistance to local companies to expand markets and products.

Ideally, close cooperation between local governments, chambers of commerce, educational institutions and local business will result in the development of a comprehensive plan to expand the economic base of the area. It is hoped that this expansion will occur in a manner which dampens the boom/bust cycle and is consistent with long term economic growth.

Development of the local economic infrastructure, so that we supply locally an increased percentage of the goods and services we consume, will be of help to the economy. It is of even greater importance if a local company sells its product or service outside the area.

Diversification is not as much the goal as is a balance between oil and gas and counter-cyclical businesses which will dampen the impact of oil industry booms and busts. Any industry which is not as volatile as oil and gas will add to the economic stability of the region. Basically, we need to have the equivalent in the community of an investor with a well diversified portfolio of growth stocks.

IMPLEMENTATION

Whatever the final plan, when it is implemented, it must be able to track contacts and measure the effectiveness of various strategies for attracting new companies or developing existing businesses. Economic development and growth is not a short term project. It is a long term commitment for the community.

Although existing organizations are doing much of the job, it may be in the best interest of Midland, Odessa and the surrounding communities to pool national advertising monies. Midland and Odessa appear better together from a statistical point of view. Furthermore, both cities share a common labor force and industrial base. Many people work in one city and live in the other.

Instead of duplicating recruiting efforts for new business, it may be best to work together to make the initial contacts, then compete against each other to see who wins the final prize. Both cities have much to offer separately. However, the synergistic effect of working together will be to the ultimate benefit of both Midland and Odessa.

APPENDIX

Table 1.

EMPLOYMENT WAGES OR A SALARY

MIDLAND

	Wage & Salary	Mfg.	Oil & Gas	Const.	Trans. & Util.	Trade	Finance	Services	Government
1973	24,053	1,872	6,008	1,401	1,457	5,553	1,192	3,669	2,903
1974	25,361	2,198	6,068	1,382	1,570	6,008	1,268	4,053	2,813
1975	28,326	2,233	7,186	1,736	1,673	6,901	1,348	4,309	2,941
1976	29,491	1,891	7,359	1,619	1,883	7,576	1,492	4,520	3,151
1977	33,017	3,012	8,077	1,875	2,087	7,919	1,705	4,954	3,388
1978	36,867	3,858	9,096	2,258	2,288	8,346	1,848	5,134	4,039
1979	38,521	3,618	9,398	2,551	2,437	8,673	2,062	5,358	4,426
1980	43,342	4,171	10,946	3,183	2,563	9,492	2,217	6,263	4,508
1981	50,229	4,821	12,763	3,767	2,813	11,246	2,583	7,708	4,529
1982	53,892	4,400	13,642	4,225	2,967	12,292	3,183	8,292	4,892
1983	49,750	3,608	12,125	3,233	2,608	11,667	3,517	7,850	5,142
1984	50,183	3,708	12,308	2,683	2,342	11,742	3,408	8,475	5,517
1985	49,967	3,900	11,625	2,408	2,467	11,308	3,200	9,192	5,867
1986	45,733	3,300	9,958	1,692	2,233	10,683	2,858	8,925	6,083
1987	43,617	2,750	9,808	1,275	2,142	10,158	2,542	8,850	6,092
1988	44,658	2,642	10,142	1,325	2,300	10,000	2,300	9,592	6,358
1989*	44,167	2,567	9,733	1,333	2,300	9,767	2,300	9,567	6,600

ODESSA

	Wage & Salary	Mfg.	Oil & Gas	Const.	Trans. & Util.	Trade	Finance	Services	Government
1973	34,443	4,682	5,328	3,105	2,205	8,888	1,194	3,949	5,093
1974	37,828	5,115	6,106	3,504	2,361	10,026	1,197	4,187	5,332
1975	39,937	5,498	6,318	3,242	2,319	11,218	1,290	4,569	5,483
1976	42,363	5,721	6,387	3,918	2,323	12,010	1,410	4,963	5,632
1977	45,344	5,959	6,959	4,152	2,501	12,804	1,570	5,510	5,889
1978	48,363	6,532	7,486	4,511	2,553	13,618	1,661	6,163	5,841
1979	49,246	6,853	7,556	4,264	2,417	14,210	1,729	6,221	5,997
1980	52,933	7,421	8,133	4,596	2,467	15,271	1,821	6,808	6,383
1981	60,292	9,396	9,333	5,396	2,813	16,883	1,988	8,171	6,313
1982	61,767	8,258	9,308	5,883	3,158	17,608	2,350	8,683	6,517
1983	52,692	5,742	8,375	4,067	2,808	15,058	2,308	7,533	6,800
1984	51,300	4,983	8,733	3,508	2,667	14,592	2,075	7,858	6,883
1985	52,450	5,058	9,117	3,592	2,633	14,875	1,975	8,000	7,200
1986	45,108	4,058	6,558	2,642	2,158	13,358	1,700	7,300	7,333
1987	42,358	3,717	6,050	2,267	2,075	12,317	1,633	6,833	7,467
1988	43,225	4,058	5,992	2,075	2,108	12,658	1,700	7,108	7,525
1989*	42,425	3,967	5,617	1,742	2,100	12,617	1,700	7,200	7,483

Source: Texas Employment Commission

* First Quarter, 1989

Table 2.

MIDLAND

	BANK DEPOSITS	ELECTRIC CONNECTIONS	GAS CONNECTIONS	WATER CONNECTIONS	TELEPHONE CONNECTIONS
1981	$1,958,135	37,565	24,756	25,087	53,924
1982	$2,098,588	42,082	26,987	26,091	59,476
1983	$1,610,417	43,665	26,887	26,635	59,768
1984	$1,745,634	45,111	26,823	26,945	61,444
1985	$1,753,735	45,647	27,181	27,364	63,082
1986	$1,574,607	44,893	26,858	27,205	60,328
1987	$1,510,529	44,599	26,887	27,030	59,871
1988	$939,199	44,847	28,004	27,403	61,017

SOURCE: Midland Chamber of Commerce

ODESSA

	BANK DEPOSITS	ELECTRIC CONNECTIONS	GAS CONNECTIONS	WATER CONNECTIONS	TELEPHONE CONNECTIONS
1981	$783,799	53,550	31,541	27,086	58,097
1982	$826,153	57,313	31,878	27,657	60,047
1983	$775,276	56,182	30,848	27,166	57,660
1984	$777,616	56,170	30,292	26,873	57,534
1985	$760,628	56,074	30,419	27,054	57,683
1986	$709,155	53,847	29,634	26,362	55,553
1987	$876,490	53,346	29,126	26,140	54,146
1988	$753,364	53,672	28,883	26,510	54,425

SOURCE: Odessa Chamber of Commerce

	MIDLAND	ODESSA
1982	$946,026,064	$1,480,913,957
1983	$840,109,565	$1,125,405,629
1984	$928,951,416	$1,217,971,117
1985	$1,248,130,681	$1,216,019,874
1986	$795,347,470	$964,685,297
1987	$773,559,941	$1,002,850,247
1988	$817,329,450	$1,084,047,955

Source: Comptroller of Public Accounts
Year End State Sales and Use Tax Analysis

Table 3.

HOME SALES

MULTIPLE LISTING SERVICE

	Midland			Odessa		
	HOMES SOLD	VALUE MILLIONS	AVERAGE PRICE	HOMES SOLD	VALUE MILLIONS	AVERAGE PRICE
1978	2025	$104	$50,542	1542	$52	$34,149
1979	1749	$96	$54,593	1302	$55	$42,235
1980	1833	$123	$66,107	1830	$82	$45,015
1981	2124	$154	$72,273	1267	$83	$65,148
1982	1581	$147	$92,917	870	$63	$71,850
1983	1234	$114	$92,266	763	$54	$70,488
1984	1136	$103	$91,180	854	$55	$63,890
1985	1238	$111	$89,831	949	$58	$61,186
1986	1329	$105	$79,578	894	$52	$58,631
1987	1652	$125	$75,182	970	$54	$55,822
1988	1450	$107	$73,787	925	$47	$50,168

Source: Real Estate Center, Texas A&M; Board of Realtors

HOUSING PERMITS

	MIDLAND			ODESSA		
	SINGLE	MULTIFAMILY	TOTAL	SINGLE	MULTIFAMILY	TOTAL
1973	111	125	236	151	198	349
1974	123	70	193	181	204	385
1975	415	246	661	354	1,142	1,496
1976	386	752	1,138	531	570	1,101
1977	639	475	1,114	658	570	1,228
1978	562	557	1,119	349	632	981
1979	482	1,092	1,574	232	225	457
1980	801	532	1,333	562	995	1,557
1981	1,642	2,009	3,651	541	1,567	2,108
1982	1,423	2,643	4,066	778	1,531	2,309
1983	1,132	848	1,980	806	219	1,025
1984	620	27	647	505	4	509
1985	375	117	492	445	0	445
1986	153	18	171	243	0	243
1987	203	2	205	114	0	114
1988	222	0	222	199	0	199

Source: Real Estate Center, Texas A&M; Cities of Midland and Odessa.

REPORT ON LABOR DEMAND IN THE PERMIAN BASIN

WRITTEN BY NOLAN M. McCARTY

PUBLISHED BY THE BUSINESS AND ECONOMIC DEVELOPMENT CENTER OF MIDLAND COLLEGE

FUNDED BY THE PERMIAN BASIN PRIVATE INDUSTRY COUNCIL

SEPTEMBER, 1989

REPORT ON LABOR DEMAND IN THE PERMIAN BASIN

A PUBLICATION OF THE BUSINESS AND ECONOMIC DEVELOPMENT CENTER AT MIDLAND

This publication is funded by the Permian Basin Private Industry Council

This project was undertaken to explore the future needs of employers in the Permian Basin. Regional employment demand is dynamic and fluctuating. Without vigilant observation of the intracacies of this vital market, we might become unprepared for the new world of tommorrow. Labor market information is essential to occupational counselors and prospective job-market entrants in identifiifying those occupations that will be in demand in the future.

Written by: Nolan M. McCarty

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REPORT ON LABOR DEMAND IN THE PERMIAN BASIN

The purpose of this study funded by the Permian Basin Private Industry Council is to estimate the labor demand in the seventeen counties of the Permian Basin for different occupational categories. A survey of existing industry in the area has provided a general picture of the movements between occupations in the area's economy but presents a somewhat more hazy picture of the absolute growth of each occupation.

I. USES

The potential uses for this project can be wide and varied. It was initially designed so that the Permian Basin Private Industry Council and the Job Training Partnership Act could use it to design their policies on funding job training for certain occupations. However, this same information can be used by any agency related to the job training effort. Colleges, secondary schools, and trade schools can use this information in structuring their vocational curricula. Vocational counselors may find it valuable in consulting with students. In addition businesses and employment agencies will have a vested interest in the results.

II. METHODOLOGY

The study consisted of a survey of 750 businesses representing all seventeen counties of the Permian Basin drawn at a random sample from the Texas Employment Commission mailing list for the area. Other sources were used for businesses that do not appear on this list. (The TEC mailing list is categorized by the zip code for which the companies' employment records are held, thus many larger businesses did not appear on the list.) These other sources include phone and industrial directories. The biases caused by using phone directories is well documented, but in this case the bias favored large firms which had been biased against in the TEC list. A random sample was chosen because there was not enough known a priori about the businesses to stratify the sample (i.e. number of employees, primary industry, ect.). Thus, responses were stratified after the survey using information given by the firms. The questionnaire simply requested the number of employees that each firm presently employed, and projected employing in 1989, 1994 and the year 2000 in each of 226 different occupational categories. Ideally, the results would have then been stratified by county and industry and extrapolated to the total employment of each industry in each county as determined by the Texas Employment Commission. However, due to the low response rate, the returns for each county-industry group were not large enough for this breakdown. Thus, the data was extrapolated to the total employment in the 17 county area for each industry.

III. RESPONSE

As mentioned earlier, the response to the survey was very poor. Of the 750 businesses in the sample, only 130 returned usable questionnaires. These useful responses represented approximately 6.1% of the total number of employees in the area. Fortunately, the responses by number of firms were fairly well distributed geographically and by industry. Figure 1 shows the response by firms in a matrix of county and industry. Figure 2 shows the response by number of employees reported in a matrix of county and industry. The low response not only increases the potential for "statistical" error in the results, but also could cause what is called "non-response bias." Non-response bias means that there are significant differences between the types of firms that responded to the survey and those that did not. This potential problem cannot be ignored. Thus, the non-response bias is the first caveat that must be suggested to users of this survey. Surveys of this type in the future must develop better sampling and follow-up schemes in order to combat the low response and the associated biases. Perhaps, this survey in spite of its biases will provide a significant foundation to the knowledge of this area's employment structure for future surveys to build on.

IV. VALIDITY OF INDIVIDUAL PROJECTIONS

One premise behind a survey of this type is that each firm is capable of making accurate

projections of their own employment needs in the future. However, it is obvious that employers will not be able to foresee all of the changes in the factors that influence their employment decisions, and thus cannot be able to precisely predict their needs in the future. The best that a survey of this type can hope for is that the errors made by employers will not be systematic and will thus cancel each other in the aggregate. However, there is reason to believe the employers will make systematically high predictions of their future labor forces. One reason for this is that entrepreneurs tend to be overly optimistic about their own prospects in the long run or else they probably would not remain in business. Secondly, in the case of many of the larger businesses, personnel directors completed the surveys instead of entrepreneurs. This presents two problems:

1. Personnel directors are probably uninformed of the long-term goals of the company management.

2. Personnel directors have a personal stake in convincing management of the desirability of staffing increases. Thus, they tend to overstate the company's needs.

This problem can be seen in the results. The aggregate growth of employment in the Permian Basin as reflected in the survey is overly optimistic by any standards. Each industry projected different growth rates. This presents the problem of overly weighting occupations in high projection industries and underweighting those in low projection industries. In order for the user of this study to assess the biases that this causes, figure 3 lists the projected yearly average growth rates for each industry through the year 2000.

Figure 3

Agriculture	**1.75%**
Mining	**3.09%**
Construction	**9.17%**
Manufacturing	**4.23%**
Trans., Comm., and Pub Util	**4.88%**
Finance, Insurance,Real Estate	**1.30%**
Trade	**2.31%**
Services	**2.25%**
Government	**0.91%**

Figure 3 can be compared with pending econometric forecasts to weigh the effects of these different growth rates.

V. OCCUPATIONAL DEFINITIONS

Since this survey was a mail survey and there was little or no direct contact with the respondents, each firm had considerable leeway in categorizing each of their employees. This creates problems, especially, when an employee's duties fall into several categories. The firms were asked to choose the one that BEST describes an employee's activities, but even the same activity often falls into different occupational activities. Therefore, the results are significantly affected by the categorization choices of the employers. For this reason, the results may differ from those results from other studies of this type due to the often arbitrary nature of the categorizations.

VI. RESULTS

Due to the problem of the firm's estimation biases the results are given in two formats. The first format gives the projected total of employees that will be employed in 1989, 1994, and 2000. However, these results are affected by both the overestimation bias and the differential growth rates among industries. The second format is percentage of the total workforce for each occupation in each year. This format partially eliminates the bias of aggregate over prediction, but is still influenced by the different projected growth rates among industries. Note that while 226 occupations appeared on the survey, some categories were combined in these results. One should also be aware that these numbers are of jobs created in each occupation. Thus, by neglecting the dynamics of inter- occupational mobility, resignations, retirements, and migration from this market, they fail to give a true picture of the job market. These problems are ones that need to be studied later by various other means.

Figures 4 and 5 present the results. However, here is a list of the fastest growing jobs by percentage and the lowest by percentage to the year 2000.

Fastest

1.	Electricians	277%
2.	Telephone Operators	253%
3.	Photographic Process Workers	201%
4.	Upholsterers	174%
5.	Insulation Workers	163%
6.	EEG Technicians	160%
7.	Protective Services	159%
8.	Counter and Rental Sales Workers	150%
9.	Millwrights	146%
10.	Legal Assistants	142%

Slowest

1.	General Managers and Top Executives	-2%
2.	Communications Occupations	-42%

10 occupations show 0% growth
Please see figure 6.

Here are the occupations where the most jobs will be created and where the least will be created before the year 2000.

Most

1.	Oil Field Trades	5247
2.	Food and Beverage Services	3579
3.	Chefs, Cooks, and Kitchen Workers	3527
4.	Secretaries	2610
5.	Construction Trades Helpers	1783
6.	Other Engin., Arch., & Surv.	1773
7.	Telephone Operators	1470
8.	Precision Assemblers	1440
9.	Ground Transport and Material Movers	1362
10.	Residential & Office Construction	1343

Least

1.	Communications Occupations	-186
2.	General Mangers and Top Executives	-69

10 occupations project 0 new jobs.
Please see figure 7.

VI. CONCLUSIONS

Although the use of this survey requires the heeding of many caveats, the results may turn out to be a quite useful first approximation of the employment market in the Permian Basin. However, to derive the full benefit from this survey, it must be used as a building block for future, more intensive studies. The availability of information on business and employment conditions may in fact be one of the most important factors in promoting economic development. If we are to be ceaseless in our attempts to foster economic growth, research of this type must continue to grow in scope and sophistication.

FIGURE 1- DISTRIBUTION OF SURVEYED FIRMS BY COUNTY AND INDUSTRY

COUNTY	INDUSTRY AGR	MIN	CON	MAN	TCPU	TRAD	FIRE	SERV	LOC	STAT	FED	TOTAL
MIDLAND	0	15	2	2	1	10	8	21	0	0	2	61
GAINES	1	0	0	0	1	1	1	1	0	0	0	5
PECOS	0	1	0	0	1	0	0	2	0	0	1	5
WINKLER	0	0	0	0	0	0	0	1	1	0	0	2
WARD	0	1	1	0	0	0	3	2	0	0	0	7
ECTOR	0	1	7	3	0	7	1	11	0	1	0	31
CRANE	0	0	0	0	0	0	0	1	0	0	0	1
UPTON	0	0	0	0	0	0	1	0	0	0	0	1
DAWSON	1	0	1	0	0	2	2	1	0	0	0	7
REEVES	0	0	0	0	1	2	0	2	0	1	0	6
HOWARD	0	0	0	0	0	2	0	0	0	0	0	2
ANDREWS	0	0	0	0	1	0	0	0	0	0	0	1
	2	18	11	5	5	24	16	42	1	2	3	129

FIGURE 2- DISTRIBUTION OF SURVEYED EMPLOYEES BY COUNTY AND INDUSTRY

COUNTY	INDUSTRY AGR	MIN	CON	MAN	TCPU	TRAD	FIRE	SERV	LOC	STAT	FED	TOTAL
MIDLAND	0	235	11	673	603	382	412	1161	0	0	93	3550
GAINES	29	0	0	0	7	17	5	32	0	0	0	90
PECOS	0	4	0	0	16	0	0	1	0	0	6	27
WINKLER	0	0	0	0	0	0	0	22	0	0	0	22
WARD	0	27	3	0	0	0	9	41	0	0	0	80
ECTOR	0	3	793	29	0	42	3	2962	235	10	0	4077
CRANE	0	0	0	0	0	0	0	1	0	0	0	1
UPTON	0	0	0	0	0	0	4	0	0	0	0	4
DAWSON	3	0	11	0	0	6	54	0	0	0	0	74
REEVES	0	0	0	0	11	24	0	41	0	5	0	81
HOWARD	0	0	0	0	0	11	0	0	0	0	0	11
ANDREWS	0	0	0	0	6	0	0	0	0	0	0	6
	32	269	818	702	643	462	487	4261	235	15	99	8023

EMPLOYMENT PROJECTIONS- FIGURE 4

	NOW	1989	1994	2000
I. MANAGEMENT				
ACCOUNTANTS & AUDITORS	2495	2735	3214	3591
CONSTRUCTION & BUILDING INSPECTORS	954	954	961	975
COST ESTIMATORS	49	49	63	63
EDUCATION ADMINISTRATORS	412	400	420	412
EMPLOYMENT INTERVIEWERS	244	244	332	336
FINANCIAL MANAGERS	451	451	479	567
GENERAL MANAGERS & TOP EXECUTIVES	4045	3755	4017	3975
HEALTH SERVICES MANAGERS	378	466	466	466
INSPECTION & COMPLIANCE OFFICERS	24	24	36	41
MANAGEMENT CONSULTANTS	150	150	159	253
MARKETING, ADVERTISING, & PUBLIC REL.	405	276	398	537
PERSONNEL, TRAINING, & LABOR SPECIALIST	467	454	523	593
PROPERTY & REAL ESTATE MANAGEMENT	396	502	514	439
PURCHASING AGENTS	481	550	637	734
HOTEL, RESTAURANT & FOOD MNGMT.	1077	1148	1288	1425
UNDERWRITERS	96	93	96	96
WHOLESALE & RETAIL BUYERS	657	587	865	1005
II. ENGINEERS, SURVEYORS, ARCHITECTS				
CIVIL ENGINEERS	504	504	511	518
ELECTRICAL & ELECTRONIC ENGINEERS	754	803	909	1088
MECHANICAL ENGINEERS	200	212	243	268
PETROLEUM ENGINEERS	506	506	594	594
OTHER ENG., ARCHITECTS & SURVEYORS	1671	1811	2651	3444
III. NATURAL, COMPUTER, MATHEMATICAL SCIENCES				
COMPUTER, MATH, OPER RESEARCH OCC.	582	744	794	812
BIOLOGICAL SCIENTISTS	189	314	345	407
CHEMISTS	573	589	620	682
GEOLOGISTS AND GEOPHYSICISTS	673	760	848	848
IV. LAWYERS, SOCIAL SCIENTISTS, SOCIAL WORKERS				
LAWYERS	1348	1641	1978	2073
REGIONAL AND URBAN PLANNERS	199	298	298	298
SOCIAL WORKERS	846	1045	1045	1059
LEGAL ASSISTANTS	110	125	188	268
V. TEACHERS, LIBRARIANS, COUNSELORS				
POST-SECONDARY FACULTY	316	316	323	333
SCHOOL COUNSELORS	152	152	156	156
KINDER. AND ELEM. SCHOOL TEACHERS	2599	2602	2602	2602
LIBRARIANS	137	146	149	149
SECONDARY SCHOOL TEACHERS	2194	2197	2197	2197
TEACHERS AIDES	442	442	442	442
VI. HEALTH PRACTITIONERS AND TREATING OCCUPATIONS				
HEALTH PRACTITIONERS	790	790	835	934
DIETICIANS AND NUTRITIONISTS	43	43	48	52
OCCUPATIONAL THERAPISTS	9	9	14	14
PHARMACISTS	99	99	103	108
PHYSICAL THERAPISTS	23	23	27	32
REGISTERED NURSES	1479	1555	1669	1795
RESPIRATORY THERAPISTS	23	23	27	32
SPEECH PATHOLOGISTS & AUDIOLOGIST	11	11	11	15
DENTAL ASSISTANTS AND HYGIENISTS	31	31	62	62
NURSING AND PHYCHIATRIC AIDES	170	193	215	238
CLINICAL LABORATORY TECHNICIANS	214	219	237	260
EEG TECHNICIANS	25	40	60	65
EKG TECHNICIANS	40	56	76	65
EMERGENCY MEDICAL TECHNICIANS	2388	2487	2487	2487
LICENSED PRACTICAL NURSE	542	627	650	673
MEDICAL RECORD TECHNICIANS	132	153	177	202
NUCLEAR MEDICINE TECHNOLOGISTS	40	56	60	60
RADIOLOGICAL TECHNOLOGISTS	199	230	234	243
SURGICAL TECHNICIANS	101	137	146	155
VII. COMMUNICATIONS AND ARTS				
COMMUNICATIONS OCCUPATIONS	444	456	135	257
VISUAL ARTS	59	59	59	59
VII. TECHNOLOGISTS AND TECHNICIANS				
COMPUTER PROGRAMMERS	380	568	581	606
DRAFTERS	608	608	628	644
ENGINEERING TECHNICIANS	1387	1461	1550	1741

	NOW	1989	1994	2000
VIII. MARKETING AND SALES OCCUPATIONS				
CASHIERS	1129	1199	1268	1338
COUNTER AND RENTAL CLERKS	279	348	557	696
INSURANCE SALES WORKERS	144	180	276	288
RETAIL AND WHOLESALE WORKERS	2601	2572	3153	3354
REAL ESTATE AGENTS AND BROKERS	833	893	1013	1073
SERVICES SALES	802	1060	863	1355
IV. ADMINISTRATIVE SUPPORT OCCUPATIONS				
BANK TELLERS	1132	1168	1228	1276
BOOKKEEPERS AND ACCOUNTING CLERKS	2802	2847	3350	3646
CLERICAL SUPERVISORS AND MANAGERS	1840	1840	1864	1874
COMPUTER OPERATORS	1084	1167	1277	1405
DATA ENTRY KEYERS	865	964	1080	1196
FILE CLERKS	437	512	527	602
GENERAL OFFICE CLERKS	1991	2142	2647	3010
INSURANCE AND POLICY PROCESSING	692	704	755	790
POSTAL CLERKS AND MAIL CARRIERS	2163	2163	2445	2875
RECEPTIONISTS & INFORMATION CLERKS	1148	1394	1568	1653
SECRETARIES	5154	5713	6566	7764
STATISTICAL CLERKS	69	69	72	79
STENOGRAPHERS	31	31	31	37
STOCK CLERKS	663	803	948	1095
TELEPHONE OPERATORS	582	1005	1875	2052
TYPISTS AND WORD PROCESSORS	459	380	571	920
X. SERVICE OCCUPATIONS				
PROTECTIVE SERVICES	655	854	1169	1696
CHEFS, COOKS, KITCHEN WORKERS	11117	11813	13228	14644
FOOD AND BEVERAGE SERVICE	11762	12459	13938	15341
CHILDCARE WORKERS	218	260	296	311
JANITORS AND CLEANERS	1540	1793	1903	1966
PRIVATE HOUSEHOLD WORKERS	101	101	101	101
XI. AGRICULTURE				
FARM AND RANCH MANAGERS	272	360	461	488
XII. MECHANICS, INSTALLERS, REPAIRERS				
AUTOMOTIVE BODY REPAIRERS	99	99	99	99
AUTOMOTIVE MECHANICS	660	747	754	761
ELECTRONIC EQUIPMENT REPAIRER	784	784	796	796
COMMUNICATIONS EQUIPMENT MECHANICS	647	647	929	1353
COMPUTER SERVICE TECHNICIANS	60	60	73	85
DIESEL MECHANICS	760	790	820	889
ELECT. HOME ENTERTAINMENT REPAIRERS	70	70	139	139
FARM EQUIPMENT REPAIRERS	78	78	78	78
GENERAL MAINTENANCE MECHANICS	1306	1305	1391	1546
HEATING, AIR-COND, REFRIGERATION	89	105	117	130
LINE INSTALLERS AND CABLE SPLICERS	611	611	909	1364
MILLWRIGHTS	28	34	69	69
MOBILE HEAVY EQUIPMENT MECHANICS	14	14	14	14
MOTORCYCLE, BOAT, SMALL ENGINE MECH.	47	47	47	47
TELEPHONE INSTALLERS AND REPAIRERS	988	1003	1273	1715
XIII. CONSTRUCTION TRADES				
RESIDENTIAL & OFFICE CONSTRUCTION	1247	1218	1694	2590
ELECTRICIANS	110	134	240	415
INSULATION WORKERS	262	276	345	690
PLUMBERS AND PIPE FITTERS	52	52	77	89
METAL WORKERS	57	78	78	78
CONSTRUCTION TRADES HELPERS	1886	2100	2280	3669
XIV. PRODUCTION OCCUPATION				
BLUE COLLAR WORKER SUPERVISORS	258	258	280	294
PRINTING OCCUPATIONS	226	240	301	412
DENTAL LABORATORY TECHNICIANS	47	93	93	93
ELECTRICAL PLANT OPERATORS, ETC.	1890	1990	1990	1990
INSPECTORS, TESTORS, GRADERS	647	647	770	908
MACHINISTS	203	228	240	277
OIL FIELD OCCUPATIONS	14687	15800	18332	19934
PHOTOGRAPHIC PROCESS WORKERS	139	209	279	418
PRECISION ASSEMBLERS	3631	3767	4407	5071
SHOE, LEATHERWORKERS & REPAIRERS	25	37	37	37
TOOL AND DIE MAKERS	25	25	25	25
UPHOLSTERERS	170	170	325	465
WATER & WASTE WATER OPERATORS	1890	1990	1990	1990
WELDERS, CUTTERS, & WELD. MACH OPER	653	653	1000	1173
XV. TRANSPORTATION				
TRANSPORTION AND MATERIAL MOVING	8608	8997	9593	9970
TOTALS	131521	140149	158367	177226

OCCUPATIONAL COMPOSITION - FIGURE 5

	NOW	1989	1994	2000
I. MANAGEMENT				
ACCOUNTANTS & AUDITORS	1.90%	1.95%	2.03%	2.03%
CONSTRUCTION & BUILDING INSPECTORS	0.73%	0.68%	0.61%	0.55%
COST ESTIMATORS	0.04%	0.03%	0.04%	0.04%
EDUCATION ADMINISTRATORS	0.31%	0.29%	0.27%	0.23%
EMPLOYMENT INTERVIEWERS	0.19%	0.17%	0.21%	0.19%
FINANCIAL MANAGERS	0.34%	0.32%	0.30%	0.32%
GENERAL MANAGERS & TOP EXECUTIVES	3.08%	2.68%	2.54%	2.24%
HEALTH SERVICES MANAGERS	0.29%	0.33%	0.29%	0.26%
INSPECTION & COMPLIANCE OFFICERS	0.02%	0.02%	0.02%	0.02%
MANAGEMENT CONSULTANTS	0.11%	0.11%	0.10%	0.14%
MARKETING, ADVERTISING, & PUBLIC REL.	0.31%	0.20%	0.25%	0.30%
PERSONNEL, TRAINING, & LABOR SPECIALIST	0.36%	0.32%	0.33%	0.33%
PROPERTY & REAL ESTATE MANAGEMENT	0.30%	0.36%	0.32%	0.25%
PURCHASING AGENTS	0.37%	0.39%	0.40%	0.41%
HOTEL, RESTAURANT & FOOD MANAGEMENT	0.82%	0.82%	0.81%	0.80%
UNDERWRITERS	0.07%	0.07%	0.06%	0.05%
WHOLESALE & RETAIL BUYERS	0.50%	0.42%	0.55%	0.57%
II. ENGINEERS, SURVEYORS, ARCHITECTS				
CIVIL ENGINEERS	0.38%	0.36%	0.32%	0.29%
ELECTRICAL & ELECTRONIC ENGINEERS	0.57%	0.57%	0.57%	0.61%
MECHANICAL ENGINEERS	0.15%	0.15%	0.15%	0.15%
PETROLEUM ENGINEERS	0.38%	0.36%	0.38%	0.34%
OTHER ENGINEERS,ARCHITECTS,& SURVEYORS	1.27%	1.29%	1.62%	1.94%
III. NATURAL, COMPUTER, MATHEMATICAL SCIENCES				
COMPUTER, MATH, OPER RESEARCH OCCUP.	0.43%	0.53%	0.50%	0.46%
BIOLOGICAL SCIENTISTS	0.15%	0.22%	0.22%	0.23%
CHEMISTS	0.44%	0.42%	0.39%	0.39%
GEOLOGISTS AND GEOPHYSICISTS	0.51%	0.54%	0.54%	0.48%
IV. LAWYERS, SOCIAL SCIENTISTS, SOCIAL WORKERS				
LAWYERS	1.02%	1.17%	1.25%	1.17%
REGIONAL AND URBAN PLANNERS	0.15%	0.21%	0.19%	0.17%
SOCIAL WORKERS	0.64%	0.75%	0.66%	0.60%
LEGAL ASSISTANTS	0.08%	0.09%	0.12%	0.15%
V. TEACHERS, LIBRARIANS,COUNSELORS				
POST-SECONDARY FACULTY	0.24%	0.23%	0.20%	0.19%
SCHOOL COUNSELORS	0.12%	0.11%	0.10%	0.09%
KINDER. AND ELEM. SCHOOL TEACHERS	1.98%	1.86%	1.64%	1.47%
LIBRARIANS	0.10%	0.10%	0.09%	0.08%
SECONDARY SCHOOL TEACHERS	1.67%	1.57%	1.39%	1.24%
TEACHERS AIDES	0.34%	0.32%	0.28%	0.25%
VI. HEALTH PRACTITIONERS AND TREATING OCCUPATIONS				
HEALTH PRACTITIONERS	0.60%	0.56%	0.53%	0.53%
DIETICIANS AND NUTRITIONISTS	0.03%	0.03%	0.03%	0.03%
OCCUPATIONAL THERAPISTS	0.01%	0.01%	0.01%	0.01%
PHARMACISTS	0.08%	0.07%	0.07%	0.06%
PHYSICAL THERAPISTS	0.02%	0.02%	0.02%	0.02%
REGISTERED NURSES	1.12%	1.11%	1.05%	1.01%
RESPIRATORY THERAPISTS	0.02%	0.02%	0.02%	0.02%
SPEECH PATHOLOGISTS & AUDIOLOGIST	0.01%	0.01%	0.01%	0.01%
DENTAL ASSISTANTS AND HYGIENISTS	0.02%	0.02%	0.04%	0.04%
NURSING AND PHYCHIATRIC AIDES	0.13%	0.14%	0.14%	0.13%
CLINICAL LABORATORY TECHNICIANS	0.16%	0.16%	0.15%	0.15%
EEG TECHNICIANS	0.02%	0.03%	0.04%	0.04%
EKG TECHNICIANS	0.03%	0.04%	0.05%	0.04%
EMERGENCY MEDICAL TECHNICIANS	1.82%	1.77%	1.57%	1.40%
LICENSED PRACTICAL NURSE	0.41%	0.45%	0.41%	0.38%
MEDICAL RECORD TECHNICIANS	0.10%	0.11%	0.11%	0.11%
NUCLEAR MEDICINE TECHNOLOGISTS	0.03%	0.04%	0.04%	0.03%
RADIOLOGICAL TECHNOLOGISTS	0.15%	0.16%	0.15%	0.14%
SURGICAL TECHNICIANS	0.08%	0.10%	0.09%	0.09%
VII. COMMUNICATIONS AND ARTS				
COMMUNICATIONS OCCUPATIONS	0.34%	0.33%	0.09%	0.15%
VISUAL ARTS	0.04%	0.04%	0.04%	0.03%
VIII. TECHNOLOGISTS AND TECHNICIANS				
COMPUTER PROGRAMMERS	0.29%	0.41%	0.37%	0.34%
DRAFTERS	0.46%	0.43%	0.40%	0.36%
ENGINEERING TECHNICIANS	1.05%	1.04%	0.98%	0.98%
IX. MARKETING AND SALES OCCUPATIONS				
CASHIERS	0.86%	0.86%	0.80%	0.76%
COUNTER AND RENTAL CLERKS	0.21%	0.25%	0.35%	0.39%
INSURANCE SALES WORKERS	0.11%	0.13%	0.17%	0.16%
RETAIL AND WHOLESALE WORKERS	1.98%	1.84%	1.99%	1.89%
REAL ESTATE AGENTS AND BROKERS	0.63%	0.64%	0.64%	0.61%
SERVICES SALES	0.61%	0.76%	0.54%	0.76%
X. ADMINISTRATIVE SUPPORT OCCUPATIONS				
BANK TELLERS	0.86%	0.83%	0.78%	0.72%
BOOKKEEPERS AND ACCOUNTING CLERKS	2.13%	2.03%	2.12%	2.06%
CLERICAL SUPERVISORS AND MANAGERS	1.40%	1.31%	1.18%	1.06%
COMPUTER OPERATORS	0.82%	0.83%	0.81%	0.79%
DATA ENTRY KEYERS	0.66%	0.69%	0.68%	0.68%
FILE CLERKS	0.33%	0.37%	0.33%	0.34%
GENERAL OFFICE CLERKS	1.51%	1.53%	1.67%	1.70%
INSURANCE AND POLICY PROCESSING	0.53%	0.50%	0.48%	0.45%
POSTAL CLERKS AND MAIL CARRIERS	1.64%	1.54%	1.54%	1.62%
RECEPTIONISTS AND INFORMATION CLERKS	0.87%	0.99%	0.99%	0.93%
SECRETARIES	3.92%	4.08%	4.15%	4.38%
STATISTICAL CLERKS	0.05%	0.05%	0.05%	0.04%
STENOGRAPHERS	0.02%	0.02%	0.02%	0.02%
STOCK CLERKS	0.50%	0.57%	0.60%	0.62%
TELEPHONE OPERATORS	0.44%	0.72%	1.18%	1.16%
TYPISTS AND WORD PROCESSORS	0.35%	0.27%	0.36%	0.52%
XI. SERVICE OCCUPATIONS				
PROTECTIVE SERVICES	0.50%	0.61%	0.74%	0.96%
CHEFS, COOKS, KITCHEN WORKERS	8.45%	8.43%	8.35%	8.27%
FOOD AND BEVERAGE SERVICE	8.94%	8.89%	8.80%	8.66%
CHILDCARE WORKERS	0.17%	0.20%	0.19%	0.18%
JANITORS AND CLEANERS	1.17%	1.28%	1.20%	1.11%
PRIVATE HOUSEHOLD WORKERS	0.08%	0.07%	0.06%	0.06%
XII. AGRICULTURE				
FARM AND RANCH MANAGERS	0.21%	0.26%	0.29%	0.28%
XIII. MECHANICS, INSTALLERS, REPAIRERS				
AUTOMOTIVE BODY REPAIRERS	0.08%	0.07%	0.06%	0.06%
AUTOMOTIVE MECHANICS	0.50%	0.53%	0.48%	0.43%
ELECTRONIC EQUIPMENT REPAIRER	0.60%	0.56%	0.50%	0.45%
COMMUNICATIONS EQUIPMENT MECHANICS	0.49%	0.46%	0.59%	0.76%
COMPUTER SERVICE TECHNICIANS	0.05%	0.04%	0.05%	0.05%
DIESEL MECHANICS	0.58%	0.56%	0.52%	0.50%
ELEC. HOME ENTERTAINMENT REPAIRERS	0.05%	0.05%	0.09%	0.08%
FARM EQUIPMENT REPAIRERS	0.06%	0.06%	0.05%	0.04%
GENERAL MAINTENANCE MECHANICS	0.99%	0.93%	0.88%	0.87%
HEATING, AIR-COND, REFRIGERATION	0.07%	0.07%	0.07%	0.07%
LINE INSTALLERS AND CABLE SPLICERS	0.46%	0.44%	0.57%	0.77%
MILLWRIGHTS	0.02%	0.02%	0.04%	0.04%
MOBILE HEAVY EQUIPMENT MECHANICS	0.01%	0.01%	0.01%	0.01%
MOTORCYCLE, BOAT, SMALL ENGINE MECH.	0.04%	0.03%	0.03%	0.03%
TELEPHONE INSTALLERS AND REPAIRERS	0.75%	0.72%	0.80%	0.97%
XIV. CONSTRUCTION TRADES				
RESIDENTIAL & OFFICE CONSTRUCTION	0.95%	0.87%	1.07%	1.46%
ELECTRICIANS	0.08%	0.10%	0.15%	0.23%
INSULATION WORKERS	0.20%	0.20%	0.22%	0.39%
PLUMBERS AND PIPE FITTERS	0.04%	0.04%	0.05%	0.05%
METAL WORKERS	0.04%	0.06%	0.05%	0.04%
CONSTRUCTION TRADES HELPERS	1.43%	1.50%	1.44%	2.07%
XV. PRODUCTION OCCUPATIONS				
BLUE COLLAR WORKER SUPERVISORS	0.20%	0.18%	0.18%	0.17%
PRINTING OCCUPATIONS	0.17%	0.17%	0.19%	0.23%
DENTAL LABORATORY TECHNICIANS	0.04%	0.07%	0.06%	0.05%
ELECTRICAL PLANT OPERATORS, ETC.	1.44%	1.42%	1.26%	1.12%
INSPECTORS, TESTORS, GRADERS	0.49%	0.46%	0.49%	0.51%
MACHINISTS	0.15%	0.16%	0.15%	0.16%
OIL FIELD OCCUPATIONS	11.17%	11.27%	11.58%	11.25%
PHOTOGRAPHIC PROCESS WORKERS	0.11%	0.15%	0.18%	0.24%
PRECISION ASSEMBLERS	2.76%	2.69%	2.78%	2.86%
SHOE, LEATHERWORKERS & REPAIRERS	0.02%	0.03%	0.02%	0.02%
TOOL AND DIE MAKERS	0.02%	0.02%	0.02%	0.01%
UPHOLSTERERS	0.13%	0.12%	0.21%	0.26%
WATER & WASTE WATER OPERATORS	1.44%	1.42%	1.26%	1.12%
WELDERS, CUTTERS, AND WELD. MACH OPER	0.50%	0.47%	0.63%	0.66%
XVI. TRANSPORTATION				
TRANSPORTATION AND MATERIAL MOVING	6.54%	6.42%	6.06%	5.63%
TOTALS	100.0%	100.0%	100.0	100.0%

EMPLOYMENT GROWTH TO 2000-FIGURE 6

	GROWTH RATE
ELECTRICIANS	277.27%
TELEPHONE OPERATORS	252.58%
PHOTOGRAPHIC PROCESS WORKERS	200.72%
UPHOLSTERERS	173.53%
INSULATION WORKERS	163.36%
EEG TECHNICIANS	160.00%
PROTECTIVE SERVICES	158.93%
COUNTER AND RENTAL CLERKS	149.46%
MILLWRIGHTS	146.43%
LEGAL ASSISTANTS	141.82%
LINE INSTALLERS AND CABLE SPLICERS	123.24%
COMMUNICATIONS EQUIPMENT MECHANICS	109.12%
RESIDENTIAL & OFFICE CONSTRUCTION	107.70%
OTHER ENG., ARCHITECTS & SURVEYORS	106.10%
BIOLOGICAL SCIENTISTS	104.52%
TYPISTS AND WORD PROCESSORS	100.44%
INSURANCE SALES WORKERS	100.00%
DENTAL ASSISTANTS AND HYGIENISTS	100.00%
ELECT. HOME ENTERTAINMENT REPAIRERS	98.57%
DENTAL LABORATORY TECHNICIANS	97.87%
CONSTRUCTION TRADES HELPERS	94.54%
PRINTING OCCUPATIONS	80.70%
WELDERS, CUTTERS, & WELD. MACH OPER	79.63%
FARM AND RANCH MANAGERS	79.41%
TELEPHONE INSTALLERS AND REPAIRERS	73.58%
PLUMBERS AND PIPE FITTERS	71.15%
INSPECTION & COMPLIANCE OFFICERS	70.83%
SERVICES SALES	68.95%
MANAGEMENT CONSULTANTS	68.67%
STOCK CLERKS	65.16%
EKG TECHNICIANS	62.50%
COMPUTER PROGRAMMERS	59.47%
OCCUPATIONAL THERAPISTS	55.56%
LAWYERS	53.78%
SURGICAL TECHNICIANS	53.47%
MEDICAL RECORD TECHNICIANS	53.03%
WHOLESALE & RETAIL BUYERS	52.97%
PURCHASING AGENTS	52.60%
GENERAL OFFICE CLERKS	51.18%
SECRETARIES	50.64%
NUCLEAR MEDICINE TECHNOLOGISTS	50.00%
REGIONAL AND URBAN PLANNERS	49.75%
SHOE, LEATHERWORKERS & REPAIRERS	48.00%
HEATING, AIR-COND, REFRIGERATION	46.07%
COMPUTER, MATH, OPER RESEARCH OCC.	44.48%
ELECTRICAL & ELECTRONIC ENGINEERS	44.30%
RECEPTIONISTS & INFORMATION CLERKS	43.99%
ACCOUNTANTS & AUDITORS	43.93%
CHILDCARE WORKERS	42.66%
COMPUTER SERVICE TECHNICIANS	41.67%
INSPECTORS, TESTORS, GRADERS	40.34%
NURSING AND PHYCHIATRIC AIDES	40.00%
PRECISION ASSEMBLERS	39.66%
RESPIRATORY THERAPISTS	39.13%
PHYSICAL THERAPISTS	39.13%
DATA ENTRY KEYERS	38.27%
FILE CLERKS	37.76%
EMPLOYMENT INTERVIEWERS	37.70%
METAL WORKERS	36.84%
MACHINISTS	36.45%
SPEECH PATHOLOGISTS & AUDIOLOGIST	36.36%
OIL FIELD OCCUPATIONS	35.73%
MECHANICAL ENGINEERS	34.00%
POSTAL CLERKS AND MAIL CARRIERS	32.92%
MARKETING, ADVERTISING, & PUBLIC REL.	32.59%
HOTEL, RESTAURANT & FOOD MNGMT.	32.31%
CHEFS, COOKS, KITCHEN WORKERS	31.73%
FOOD AND BEVERAGE SERVICE	30.43%
BOOKKEEPERS AND ACCOUNTING CLERKS	30.12%
COMPUTER OPERATORS	29.61%
RETAIL AND WHOLESALE WORKERS	28.95%
REAL ESTATE AGENTS AND BROKERS	28.81%
COST ESTIMATORS	28.57%
JANITORS AND CLEANERS	27.66%
PERSONNEL, TRAINING, & LABOR SPECIALIST	26.96%
GEOLOGISTS AND GEOPHYSICISTS	26.00%
FINANCIAL MANAGERS	25.72%
ENGINEERING TECHNICIANS	25.52%
SOCIAL WORKERS	25.18%
LICENSED PRACTICAL NURSE	24.17%
HEALTH SERVICES MANAGERS	23.28%
RADIOLOGICAL TECHNOLOGISTS	22.11%
CLINICAL LABORATORY TECHNICIANS	21.50%
REGISTERED NURSES	21.37%
DIETICIANS AND NUTRITIONISTS	20.93%
STENOGRAPHERS	19.35%
CHEMISTS	19.02%
CASHIERS	18.51%
GENERAL MAINTENANCE MECHANICS	18.38%
HEALTH PRACTITIONERS	18.23%
PETROLEUM ENGINEERS	17.39%
DIESEL MECHANICS	16.97%
TRANSPORTION AND MATERIAL MOVING	15.82%
AUTOMOTIVE MECHANICS	15.30%
STATISTICAL CLERKS	14.49%
INSURANCE AND POLICY PROCESSING	14.16%
BLUE COLLAR WORKER SUPERVISORS	13.95%
BANK TELLERS	12.72%
PROPERTY & REAL ESTATE MANAGEMENT	10.86%
PHARMACISTS	9.09%
LIBRARIANS	8.76%
DRAFTERS	5.92%
POST-SECONDARY FACULTY	5.38%
ELECTRICAL PLANT OPERATORS, ETC.	5.29%
WATER & WASTE WATER OPERATORS	5.29%
EMERGENCY MEDICAL TECHNICIANS	4.15%
CIVIL ENGINEERS	2.78%
SCHOOL COUNSELORS	2.63%
CONSTRUCTION & BUILDING INSPECTORS	2.20%
CLERICAL SUPERVISORS AND MANAGERS	1.85%
ELECTRONIC EQUIPMENT REPAIRER	1.53%
SECONDARY SCHOOL TEACHERS	0.14%
KINDER. AND ELEM. SCHOOL TEACHERS	0.12%
MOBILE HEAVY EQUIPMENT MECHANICS	0.00%
TEACHERS AIDES	0.00%
AUTOMOTIVE BODY REPAIRERS	0.00%
PRIVATE HOUSEHOLD WORKERS	0.00%
FARM EQUIPMENT REPAIRERS	0.00%
VISUAL ARTS	0.00%
TOOL AND DIE MAKERS	0.00%
EDUCATION ADMINISTRATORS	0.00%
MOTORCYCLE, BOAT, SMALL ENGINE MECH.	0.00%
UNDERWRITERS	0.00%
GENERAL MANAGERS & TOP EXECUTIVES	-1.73%
COMMUNICATIONS OCCUPATIONS	-42.12%
TOTALS	34.75%

NEW JOBS TO THE YEAR 2000-FIGURE 7

	NEW JOBS
OIL FIELD OCCUPATIONS	5247
FOOD AND BEVERAGE SERVICE	3579
CHEFS, COOKS, KITCHEN WORKERS	3527
SECRETARIES	2610
CONSTRUCTION TRADES HELPERS	1783
OTHER ENG., ARCHITECTS & SURVEYORS	1773
TELEPHONE OPERATORS	1470
PRECISION ASSEMBLERS	1440
TRANSPORTION AND MATERIAL MOVING	1362
RESIDENTIAL & OFFICE CONSTRUCTION	1343
ACCOUNTANTS & AUDITORS	1096
PROTECTIVE SERVICES	1041
GENERAL OFFICE CLERKS	1019
BOOKKEEPERS AND ACCOUNTING CLERKS	844
RETAIL AND WHOLESALE WORKERS	753
LINE INSTALLERS AND CABLE SPLICERS	753
TELEPHONE INSTALLERS AND REPAIRERS	727
LAWYERS	725
POSTAL CLERKS AND MAIL CARRIERS	712
COMMUNICATIONS EQUIPMENT MECHANICS	706
SERVICES SALES	553
WELDERS, CUTTERS, & WELD. MACH OPER	520
RECEPTIONISTS & INFORMATION CLERKS	505
TYPISTS AND WORD PROCESSORS	461
STOCK CLERKS	432
INSULATION WORKERS	428
JANITORS AND CLEANERS	426
COUNTER AND RENTAL CLERKS	417
ENGINEERING TECHNICIANS	354
HOTEL, RESTAURANT & FOOD MNGMT.	348
WHOLESALE & RETAIL BUYERS	348
ELECTRICAL & ELECTRONIC ENGINEERS	334
DATA ENTRY KEYERS	331
COMPUTER OPERATORS	321
REGISTERED NURSES	316
ELECTRICIANS	305
UPHOLSTERERS	295
PHOTOGRAPHIC PROCESS WORKERS	279
INSPECTORS, TESTORS, GRADERS	261
PURCHASING AGENTS	253
COMPUTER, MATH, OPER RESEARCH OCC.	250
REAL ESTATE AGENTS AND BROKERS	240
GENERAL MAINTENANCE MECHANICS	240
COMPUTER PROGRAMMERS	226
FARM AND RANCH MANAGERS	216
SOCIAL WORKERS	213
CASHIERS	209
BIOLOGICAL SCIENTISTS	208
PRINTING OCCUPATIONS	184
GEOLOGISTS AND GEOPHYSICISTS	175
FILE CLERKS	165
LEGAL ASSISTANTS	156
INSURANCE SALES WORKERS	144
HEALTH PRACTITIONERS	144
BANK TELLERS	144
MARKETING, ADVERTISING, & PUBLIC REL.	132
LICENSED PRACTICAL NURSE	131
DIESEL MECHANICS	129
PERSONNEL, TRAINING, & LABOR SPECIALIST	126
FINANCIAL MANAGERS	116
CHEMISTS	109
MANAGEMENT CONSULTANTS	103
AUTOMOTIVE MECHANICS	101
WATER & WASTE WATER OPERATORS	100
ELECTRICAL PLANT OPERATORS, ETC.	100
REGIONAL AND URBAN PLANNERS	99
EMERGENCY MEDICAL TECHNICIANS	99
INSURANCE AND POLICY PROCESSING	98
CHILDCARE WORKERS	93
EMPLOYMENT INTERVIEWERS	92
HEALTH SERVICES MANAGERS	88
PETROLEUM ENGINEERS	88
MACHINISTS	74
MEDICAL RECORD TECHNICIANS	70
ELECT. HOME ENTERTAINMENT REPAIRERS	69
MECHANICAL ENGINEERS	68
NURSING AND PHYCHIATRIC AIDES	68
SURGICAL TECHNICIANS	54
CLINICAL LABORATORY TECHNICIANS	46
DENTAL LABORATORY TECHNICIANS	46
RADIOLOGICAL TECHNOLOGISTS	44
PROPERTY & REAL ESTATE MANAGEMENT	43
HEATING, AIR-COND, REFRIGERATION	41
MILLWRIGHTS	41
EEG TECHNICIANS	40
PLUMBERS AND PIPE FITTERS	37
DRAFTERS	36
BLUE COLLAR WORKER SUPERVISORS	36
CLERICAL SUPERVISORS AND MANAGERS	34
DENTAL ASSISTANTS AND HYGIENISTS	31
COMPUTER SERVICE TECHNICIANS	25
EKG TECHNICIANS	25
METAL WORKERS	21
CONSTRUCTION & BUILDING INSPECTORS	21
NUCLEAR MEDICINE TECHNOLOGISTS	20
POST-SECONDARY FACULTY	17
INSPECTION & COMPLIANCE OFFICERS	17
CIVIL ENGINEERS	14
COST ESTIMATORS	14
LIBRARIANS	12
ELECTRONIC EQUIPMENT REPAIRER	12
SHOE, LEATHERWORKERS & REPAIRERS	12
STATISTICAL CLERKS	10
DIETICIANS AND NUTRITIONISTS	9
PHARMACISTS	9
PHYSICAL THERAPISTS	9
RESPIRATORY THERAPISTS	9
STENOGRAPHERS	8
OCCUPATIONAL THERAPISTS	5
SCHOOL COUNSELORS	4
SPEECH PATHOLOGISTS & AUDIOLOGIST	4
KINDER. AND ELEM. SCHOOL TEACHERS	3
SECONDARY SCHOOL TEACHERS	3
AUTOMOTIVE BODY REPAIRERS	0
PRIVATE HOUSEHOLD WORKERS	0
TOOL AND DIE MAKERS	0
MOTORCYCLE, BOAT, SMALL ENGINE MECH.	0
EDUCATION ADMINISTRATORS	0
MOBILE HEAVY EQUIPMENT MECHANICS	0
TEACHERS AIDES	0
UNDERWRITERS	0
FARM EQUIPMENT REPAIRERS	0
VISUAL ARTS	0
GENERAL MANAGERS & TOP EXECUTIVES	-70
COMMUNICATIONS OCCUPATIONS	-187

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